

# *The* **California Veterinarian**

MARCH-APRIL  
1959



Report of

**Midwinter Conference**

**Pages 14-19**

Proposed Changes

**Constitution and By-Laws**

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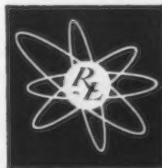
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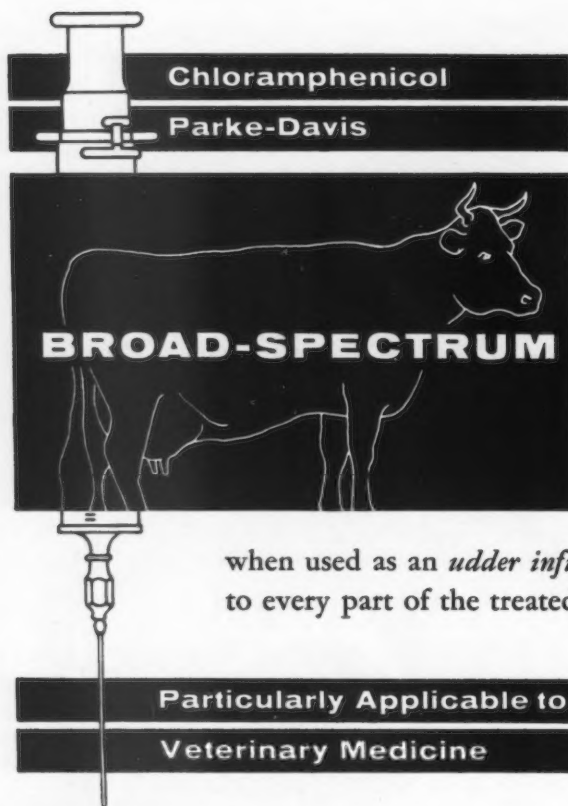
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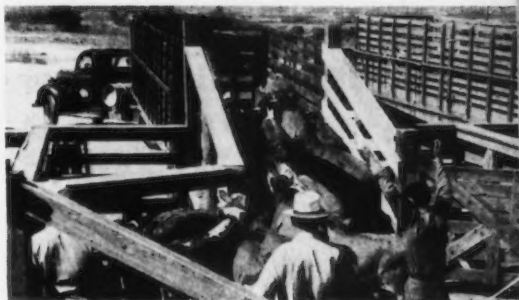
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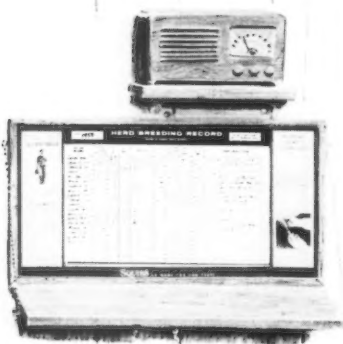


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# THE CALIFORNIA VETERINARIAN

## MARCH-APRIL, 1959

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### Number 4

# REPORT OF THE MIDWINTER CONFERENCE

The Midwinter Conference, held at the School of Veterinary Medicine, University of California, Davis, was, as usual, well attended. A balanced program of large and small animal talks and demonstrations was arranged by Dr. Ernest H. Houchin, program chairman, and Dr. J. W. Kendrick, from Davis, who was co-chairman.

On Sunday, February 1, the Large Animal Practitioners' Luncheon, sponsored by H. C. Burns Co., Inc., was held at the Hotel El Rancho.

On Monday evening the Contract Veterinarians met, and the American Animal Hospital Association held its regional meeting.

The President's Banquet and Dance was held Tuesday evening, February 3. Dr. Willard D. Ommert was master of ceremonies. Among the guests introduced were Mr. and Mrs. Vincent S. Dalsimer, director, Department of Professional and Vocational Standards; Mr. and Mrs. William E. Barbeau, executive secretary, Board of Examiners in Veterinary Medicine, Dr. and Mrs. George H. Hart, Dr. and Mrs. O. W. Schalm, and Senator Walter W. Stiern, D.V.M.

## MONDAY MORNING

### GENERAL SESSION

#### Veterinary Clinical Pathology

##### A Short Course

Selected topics in veterinary clinical pathology were presented in the form of lectures and demonstrations for members of the Midwinter conference. Topics were selected in areas of greatest interest and feasibility for the practicing veterinarian. The interpretation of results was stressed as a corollary to the judicious use of the clinical laboratory. Apparatus and equipment used in the performance of practical hematological procedures were discussed and demonstrated. The interpretation and value of the results of these procedures were discussed together with selected examples of their practical application. A résumé of the application of the newer liver function tests in domestic animals was given. Practical methods of performing a urinalysis employing the rapid pill and paper strip reagents were demonstrated and their interpretations discussed. The examination, identification and interpretation of urinary sediments were also described and demonstrated. Selected tests of endocrine function were presented and their interpretation and value were discussed. Course was presented by O. W. Schalm, C. E. Cornelius, J. J. Kaneko.

The short course dealing with the lamenesses of horses was given by Dr. Murray E. Fowler and Dr. Edward Rhode, Large Animal Clinicians at the University of California. It

consisted of discussion of the basic principles dealing with general diagnosis of lameness, followed by discussion of specific conditions such as navicular disease, laminitis, fractured sesamoids and suppurative pododermatitis. The discussion was augmented by the use of X-rays and animals which exhibited the lameness discussed. A short movie was shown on a number of representative lamenesses.

**Welcome.** Dr. O. W. Schalm, associate dean (acting dean; Sept. 1958-March 1959) welcomed the General Session Monday afternoon.

The first speaker was Dr. J. H. Gillespie, Veterinary Virus Research Institute, Veterinary College at Cornell University. An abstract of his first talk follows.

#### Immunity to Distemper in Dogs

J. H. GILLESPIE, V.M.D., Cornell University

The test in eggs for distemper-neutralizing antibodies in dog serums was shown to be specific and accurate if the amount of the virus used in the test was controlled. Virus neutralization compared with test by virulent virus showed that all 420 dogs studied that were immune to distemper had neutralizing antibodies, whether the immunity resulted from infection or was acquired from the mother either by *in utero* transfer or through the intake of colostrum.

Practically all dogs have neutralizing antibodies 9 days after injection with virulent virus and by the 12th day in sufficient titer to protect the dog. By the 30th day maximum titers are usually reached. Thereafter titers remained with relatively little decrease over a period of 2 years which was the longest time tested.

Most puppies 1 week of age or older responded to virulent distemper virus either by dying or by developing immunity if they showed a serum titer of less than 20. They were immune if their titers were higher than 30. The serum titer of a puppy was found to be proportional to the serum titer of its mother; in a puppy before nursing it was approximately 3 percent of the mother's serum titer and after intake of colostrum about 77 percent of the colostrum titer, which reflected the mother's serum titer. Although the mother's serum titer persisted, the colostrum titer fell markedly 2 days after whelping and nursing began, and the serum titer acquired by the progeny disappeared gradually, with higher titers persisting longer than lower ones. On the basis of the mother's serum titer, therefore, it became possible to predict the age at which antibodies in a puppy would no longer protect and the puppies would become susceptible and could be immunized. Since antibody titers in dogs were not increased appreciably by further exposure to virus, a nomo-

## ENCE, DAVIS, FEBRUARY 2-4, 1959

graph was constructed which permits, on the basis of the serum titer shown by a pregnant dog, a prediction of the age at which puppies as yet unborn could be immunized and thereby make available maximum protection from vaccine by vaccination at the earliest possible age.

**Virus and Cancer.** W. L. Bostick, M.D., Professor of Pathology and Director of Clinical Laboratories, School of Medicine, University of California, San Francisco, spoke on the "Enigma of Virus and Cancer".

### Physiologic Effects of Gonadal Hormones on the Human Subject

ERNEST W. PAGE, M.D.  
*University of California, S.F.*

The influences of estrogens, androgens, progesterone and the newer 19-nor steroids on the human female are reviewed. Multiple effects upon the reproductive tract, breasts, anterior pituitary function, skin, mucous membranes, bone, hair and fat distribution are observed in the case of estrogens and androgens, but the net effect on any given organ or system depends upon dosage. The progestogens are inactive in the absence of prior estrogen sensitization, except perhaps for their thermogenic effect.

For each action, an example of a clinical application is given. Less than half of these applications are, in fact, of true clinical usefulness, and a few may be harmful. The present status of the use of these steroids for the control of neoplasms is reviewed.

With respect to pregnancy, there are no useful applications with the possible exception of selected cases of habitual abortion.

**Hospital Management.** Dr. Tom D. Harris, Jr., San Mateo Practitioner, told of Hospital Management and his experiences in business aids found effective in the small animal hospital.

**Business Meeting.** The business meeting was called to order by President Stowe at 4:20. The executive secretary's report was given by Mr. Travers, who outlined highlights of 1958, and concluded his report with his resignation, effective June 30, 1959.

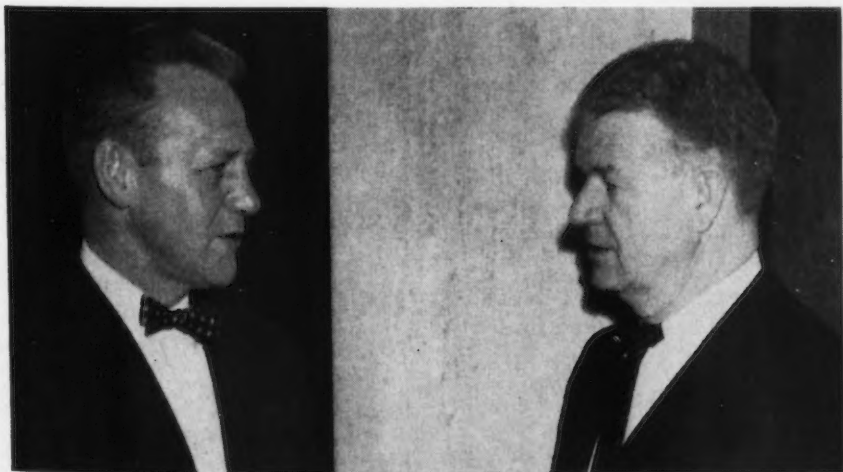
Dr. McClave, president, Board of Examiners in Veterinary Medicine, reported on the past year's activity of that board.

Committee reports were heard from Dr. Olson, Dr. Houchin, Dr. Collinson and Dr. Carricaburu. The Northwestern National Life Insurance Co.'s Group Plan was approved. Applications for membership were accepted from: Gary L. Blacksmith, Byron E. Denholm, Garnet R. Ekeberg, Charles O. Gardner, Major A. Nilson, Guy A. Railsback, Robert M. York, W. H. Townsend, Robert O. Harvey, Marilyn J. Twitchell, Lewis S. Bergstrom, Robert M. Miller, Mehmet F. Noyan, Lowell C. Dorius, Ben O. Hebert, Richard J. Haines Jr., Robert C. Schock, Melvin A. Horning and Robert G. Jones.

Dr. Leslie E. Pike was voted to life membership.

Dr. Charles H. Ozanian was voted official delegate from the CVMA to the XVIth International Veterinary Congress to be held in Madrid, Spain, in May.

Mr. William E. Barbeau, executive secretary, Board of Examiners in Veterinary Medicine, discussed legislation which was approved by



P. C. ENGE, left, and C. D. LEE were speakers at Midwinter Conference.

## REPORT OF MIDWINTER CONFERENCE

the executive committee and the legislative committee.

Dr. Ormsbee's suggestion that the CVMA commend Senator Fred Farr for sponsoring Senate Bill 279 concerning humane methods of slaughter, was passed.

Dr. Aldrich, Orange Belt VMA, presented the Walter Bateman Memorial Award to Mr. Allen Hawley.

Dr. Reid discussed the work of the Southern California VMA on annual license renewal and liaison between CVMA and the Board of Examiners in Veterinary Medicine.

The meeting was adjourned after a moment of silence in memory of our deceased members.

### TUESDAY

#### SMALL ANIMAL SECTION

##### Infectious Canine Hepatitis, With Particular Emphasis on Immunity

J. H. GILLESPIE, V.M.D., *Cornell University*

Infectious canine hepatitis is an acute viral disease of dogs that varies from an inapparent to a severe infection. In clinical cases, important signs of illness are temperature elevation, leucopenia, prolonged bleeding time, hemorrhages and edema, nervous manifestations occasionally, and transient corneal opacity during convalescence. The morbidity is high while the mortality is low.

At necropsy, blood-tinged fluid is found in abdominal cavity and petechial hemorrhages may be present in many tissues. Other important pathological lesions are observed in liver, gall bladder and kidney. Microscopically, intranuclear inclusion bodies are found in liver and endothelial cells.

During illness the virus is discharged in all excretions and direct contact is essential for successful transfer of virus. After recovery, virus is eliminated in the urine and this accounts for maintenance of virus in nature.

It is generally conceded that the immunity resulting from an active infection is solid and long-lasting in most dogs. Simultaneous inoculation with specific antiserum and virulent dog virus produces a solid immunity, but the carrier status is not eliminated. Virus grown in pig kidney tissue-cultured cells does not produce signs of illness and the dogs are immunized.

Maternal immunity interferes with the immunization of puppies with attenuated tissue-cultured pig kidney virus vaccine.

**Distemper.** Dr. D. R. Cordy reported on nervous system involvement in distemper, re-evaluating some of the findings during the past decade.

**Laboratory Aids.** Dr. R. M. Cello, Associate professor of veterinary medicine at Davis, dis-

cussed some laboratory aids used in the diagnosis of canine distemper.

##### Experimental Evaluation of A Dual Vaccine and Its Use in the Field

\* J. H. GILLESPIE, V.M.D., *Cornell University*

Tests in dogs of a combined vaccine consisting of modified canine distemper (CD) and modified infectious canine hepatitis (ICH) viruses showed that each viral component produced neutralizing antibodies and immunity if adequate amounts of each virus were given. As measured by titration in eggs, the minimal immunizing dose for CD virus was found to be between 64 and 250, and for ICH virus the TCID<sub>50</sub> was between 6.3 and 63. CD vaccine virus produced the same neutralizing antibody titer as did virulent virus, whereas ICH vaccine virus produced a lower titer. Virulent CD virus inoculated subsequently did not increase the initial antibody content produced by vaccine virus, whereas virulent ICH virus produced an increase in titer. No signs of illness developed in vaccinated dogs, and unvaccinated dogs placed in contact also remained free from illness.

On the basis of these findings it was concluded that a safe and effective vaccine, which would immunize dogs both against distemper and infectious canine hepatitis by a single inoculation, could be offered as an article of commerce, provided care was taken to ensure not only adequate amounts of each virus but adequate amounts of immunizing virus.

A nomograph relating the serum titer of the mother to the age at which her progeny will respond to vaccination for distemper is presented for routine clinical application. The nomograph was field tested with success on 57 dogs from 13 litters where the age of vaccination ranged from 4 to 12 weeks, and a statistical analysis indicated that use of the nomograph will result in at least 95% vaccination success rate. This procedure could supplant the practice of giving antiserum for temporary protection of young puppies.

**Skin Tumors.** Since 1950, Dr. P. C. Kennedy reported, about 1,000 skin lumps were sent to the School of Veterinary Medicine at Davis for identification. With slides he showed something about the distribution of these types.

**Coccidiodomycosis.** In discussing this disease, Dr. C. H. Burger noted that it is endemic to California's San Joaquin Valley, Arizona, Texas, and some areas of South America. Veterinarians can consider coccidiodomycosis in diagnosis whenever a pulmonary infection is encountered, following even a transient exposure in endemic areas. Following his talk he showed a group of slides. His paper will appear in a future issue of THE CALIFORNIA VETERINARIAN.

## REPORT OF MIDWINTER CONFERENCE



PANEL AT LARGE ANIMAL PRACTITIONERS' LUNCHEON: Wm. Linfoot, W. D. Ommert, J. W. Britton, R. S. Jackson, F. M. Brennan, K. C. Ellsworth and W. V. Dakin.

**Roentgenological Diagnosis.** With a series of slides, Dr. T. J. Hage, associate professor of veterinary medicine at Davis, showed congenital abnormalities of the hip and femur in the dog. He stressed positioning the animal properly in order to get good pictures.

### The Role of Intrauterine Infection in the Life

#### Cycle of *Toxocara canis* in the Dog

JAMES R. DOUGLAS, D.V.M., and NORMAN F. BAKER, D.V.M., *University of California, Davis*

Experimental infection of seven mature bitches with 20,000 infective ova of *T. canis* resulted in intrauterine infection in every case. Surgical removal of fetuses at intervals during gestation demonstrated that invasion of the fetus did not occur before the 42nd day. It was also demonstrated that the larvae required at least 14 days following infection of the bitch to invade the tissues of the uterus and fetus. Five of the bitches, kept free of exposure to *T. canis* were bred. When they whelped, 241 to 358 days after the initial infection, *T. canis* infections developed in every litter within 23 to 40 days (Ave. 31.8) and in every bitch within 25 to 46 days (Ave. 32.0). These infections persisted in the bitches 9 to 108 days (Ave. 60.0) and were aborted spontaneously.

Dr. William J. Zontine's paper "Practical Laboratory Screening Procedures," appears elsewhere in this issue.

**Anterior Cruciate Ligament.** Dr. N. L. McBride, with the aid of slides and film described the replacement of the anterior cruciate ligament by fascia lata transplant.

**Conference.** A case for diagnosis was submitted by the small animal clinic, School of Veterinary Medicine, to a clinical pathology conference consisting of Drs. W. J. Zontine, T. D. Harris Jr., C. H. Burger and E. C. Story.

## TUESDAY

### LARGE ANIMAL SECTION

**Milking Machine Pulsators and the Mastitis Problem,** by O. W. Schalm and D. O. Noorlander, will appear in a forthcoming issue of THE CALIFORNIA VETERINARIAN.

**California Brucellosis Control Area Program,** by Dr. H. G. Wixom, will appear in a forthcoming issue of THE CALIFORNIA VETERINARIAN.

**Brucellosis.** Dr. C. J. Ferreria discussed brucellosis testing as handled by the practitioner, outlining the history of the state program.

**Infertility.** Dr. S. J. Roberts' paper, Infertility in Cattle Due to Ovarian Disease, will appear in a forthcoming issue of THE CALIFORNIA VETERINARIAN.

**Dairy Herd.** A dairy herd reproduction program was outlined by Dr. E. M. Plocher, Watsonville practitioner.

**Virus Abortion.** Dr. Blaine McGowan, assistant professor of veterinary medicine at Davis, discussed ovine virus abortion in the U.S.

**Tranquilizers.** Dr. P. C. Engle's paper on the use of tranquilizers in the field will be found elsewhere in this issue.

**Beef Feeder Operation.** Dr. D. H. Marioni's paper on disease control as it pertains to a beef feeder operation will appear in a forthcoming issue of THE CALIFORNIA VETERINARIAN.

**Hardware Disease.** Dr. L. A. Baker's paper on a practitioner's approach to hardware disease will appear in a forthcoming issue of THE CALIFORNIA VETERINARIAN.

**Ketosis of Cattle,** by Dr. S. J. Roberts appears elsewhere in this issue.

**Poultry Practice,** by C. D. Lee, Iowa State College, appears elsewhere in this issue.

## REPORT OF MIDWINTER CONFERENCE

### Wild Deer as Carriers of Anaplasmosis in California

JOHN W. OSEBOLD, D.V.M., Ph.D.,  
*University of California, Davis*

Current thinking on the eventual control of anaplasmosis in cattle is directed toward detection of healthy carriers among cattle by means of the complement-fixation test followed by their removal either through isolation or slaughter. Control of the disease through these means can be expected to progress more satisfactorily if cattle are assumed to be the only host of any importance for this disease agent. Uncertainty has existed regarding the question of hosts other than the bovine species in the United States.

Doctors J. W. Osebold and J. F. Christensen, with the cooperation of Dr. W. M. Longhurst (Hopland Field Station, University of California) and M. N. Rosen (State Department of Fish and Game), investigated the occurrence of latent anaplasma infection among Columbian black-tailed deer in three areas of California. Whole blood was inoculated into splenectomized calves either as a pooled sample from two or more deer or as a single deer blood. Out of 40 calves inoculated 29 transmissions of anaplasmosis were obtained. There were 10 transmissions out of 10 attempts with pooled blood and 19 transmissions out of 30 attempts with single deer blood inoculations. This high incidence of carriers could not be detected by blood smear examination for anaplasma bodies or by the complement fixation test. The serological test never gave titers higher than 2+ at the 1:5 serum dilution in the 136 wild deer sera tested.

Strains of *A. marginale* isolated from deer in calves were readily passed back to deer and then again to cattle. Circumstances surrounding the Mendocino County study indicated that the agent can be maintained among deer in the absence of cattle.

This disclosure of a high rate of latent infection among wild deer has important implications regarding procedures for the control of anaplasmosis.

**Range Bull Fertility.** Dr. S. E. Rood, Chico, described the examination of the bull for general health, including the semen quality test, which has become important during the last two years.

### WEDNESDAY GENERAL SESSION

Under the chairmanship of Dr. Lyle Baker this session was held in the Auditorium, starting with a film on kidney function in disease. Dr. J. W. Kendrick then gave a paper on Virus Disease of the Bovine Genital Organs, followed by "Hemophilus Encephalitis" by Drs. P. C. Kennedy, E. L. Biberstein and J. A. Howarth.



WILLARD D. OMMERT, left, and E. R. BRAUN talk it over at President's Banquet.

A question period followed, after which the closed circuit television program was seen.

### Closed Circuit Television

*Sponsored by Allied Laboratories, Inc.  
Pitman-Moore Company Division*

Introduction of program chairmen, Drs. Ernest H. Houchin, and J. W. Kendrick was made by Dr. Charles H. Reid, narrator.

Dr. L. A. Baker, Turlock, performed a rumenotomy on Holstein cow, describing the operation as he went along, proving his contention that the entire proceeding can be done in forty minutes (time of arrival until time of departure). He then recovered a previously inserted magnet, plus wire, etc.

Cameras then moved to Dr. S. J. Roberts, Cornell University, who performed the "Caslick" operation on a Jersey cow (ordinarily performed on mares), which he described "en route", and also demonstrated his method of suture of vulva following same.

Next was introduction of Dr. Charles H. Burger, Bakersfield, whose remarks on preventive medicine as applied to accident prevention in the horse were followed by demonstrations on many protective devices to be used following injuries; correcting some lamenesses, while moving an animal in a trailer; correcting vices or bad habits, etc.

Dr. Baker was again interviewed. He had sutured up the cow, using a unique suture which he described—a very neat operation done with dispatch and efficiency.

Dr. Roberts then demonstrated some teat surgery, and the instruments he prefers for each operation. For this purpose an entire udder had been removed from a cow and placed on a rack, approximating the normal

## REPORT OF MIDWINTER CONFERENCE

position on the animal, which made the demonstration very practical, and much more convenient than trying to demonstrate on television such operations on the live subject.

The next camera position showed Dr. Roberts demonstrating a monel metal deep pan which he devised, supported by a 1½ inch pipe, enclosing at its lower end a 1¼ inch pipe—holes being drilled through both pipes, thus making it adjustable as to height. The advantages were that it can be manipulated by the owner while the surgeon works; can be moved in coordination with the animal's movements; takes the weight off the operator and owner. It is a very practical device in eversion of the uterus, e.g.

Next Dr. J. P. Hughes demonstrated a non-kicking method of restraint of the hind leg when desiring to examine or operate on a hind foot. This consisted of a "quick-release hondo" type compression noose above the hock, attached to a rope carried above the animal to a ring, back through the original attachment to the hock, and then to an assistant—a very practical double pulley arrangement.

The cameras next showed Dr. Roberts demonstrating a simple method of dehorning a calf, using a sharpened circular knife (much like the old "cork-borer") which was notched at two diametrically opposite points, having a round wooden handle which fits into the

palm of the operator's hand—very fast and effective.

Back to Dr. Hughes who demonstrated his method of making a sub-conjunctival injection in the bovine eye, medication consisting of an antibiotic plus a cortisone derivative, and used by him in the treatment of "pink-eye" in cattle.

Dr. T. J. Hage then demonstrated the importance of proper position of X-ray in relation to animal. Standard positions for various areas tend to make evaluation and subsequent diagnosis posed on Roentgenograms more valid. Then followed a presentation of actual Roentgenograms taken with the techniques described. This gave graphic evidence of every step. The foregoing was prepared by Dr. Charles H. Reid, who narrated the large animal portion of the closed circuit TV.

As we go to press no report of the small animal portion of the TV demonstrations has been received. This was narrated by Dr. Robert M. Cello and included the following:

The debarking operation, by Dr. G. Pettit; a method of repairing fracture of the mandible, Dr. R. J. Jakotich; Diagnostic aids in dermatology, Dr. G. H. Muller; treatment and surgery in pet birds, Dr. D. E. Madsen, and useful procedures for the small animal practitioner, by a panel consisting of Drs. N. L. McBride, W. E. Steinmetz, P. L. McClave and J. W. Harrison.



CLINICAL PATHOLOGY CONFERENCE: R. M. Cello, standing, presents a case for diagnosis to T. D. Harris, Jr., E. C. Story, C. H. Burger and W. J. Zontine.

# The Use of Tranquilizers in the Field\*

P. C. ENGE, D.V.M.

Extension Veterinarian, University of California, Davis

When I think of a tranquil animal, I like to think of it in its relationship to other animals—between the *normal* animal and the *sedated* animal—a tranquil animal being, of course, under the effects of tranquilizers.

Tranquilizers have been defined as mild sedative drugs possessing the ability to reduce agitation and apprehension in animals and create calmness and well-being. Technically, mild sedative drugs control slight to moderate conditions of hyperexcitability. However, large doses of tranquilizers used to produce sedation are likely to lead to undesirable side effects, such as weakness, ataxia, stupor, coma—even paralysis and convulsions.

It is obvious that tranquilizers must be used with discretion, and, of course, they are available only by prescription.

How do tranquilizers work? Our knowledge of the action of tranquilizers is still rather limited. We do know that stimuli, entering the nervous system, control consciousness and behavior when they reach the thalamus, or lower part of the brain—and this is where it is believed tranquilizers do their work. The heavier sedatives act upon the cerebrum, or the upper part of the brain.

Heavier sedatives are associated with the brain functions controlling reflexes, memory, sensation, correlation and consciousness. Tranquilizers are associated with the brain functions governing temperature, metabolism, fear, anger, excitement, worry and water balance.

When we consider the attributes reportedly assigned to tranquilizers and their possible application to field problems in animal health, we can appreciate the recent favorable publicity they have been receiving.

Tranquilizers have been used in the field of veterinary medicine to control small animals since 1952, but only recently has their use been introduced into livestock production. Presently, tranquilizers are being used for shipping fever control and prevention, to quiet weaner calves, to prevent shrinkage losses, and for grafting lambs.

There have been many claims for effective results with the use of tranquilizers for treatment of animals. They are considered to work well in combination with heavier anesthetics. They are also reported to be valuable in fracture reductions, obstetrical cases, restraint prior to surgery and as an aid in breeding. The effects of tetanus, colic, shipping fever and enterotoxemia can be lessened by using tranquilizers—or so it has been reported.

One of my jobs as Extension Veterinarian for the University of California, in liaison with the departments of the School of Veterinary

Medicine, is to apply basic research to field problems. This activity during the past year has been largely devoted to field demonstration of tranquilizers for the purpose of studying their potential for controlling and preventing shipping fever, their possible ability to reduce shrinkage, their value in adjusting weaner calves to a new environment, and their possible usefulness in grafting lambs.

Cooperating on the field tests were: Mr. Reuben Albaugh, Extension Animal Husbandman; county farm advisors, practicing veterinarians, the tranquilizer producers, and livestock owners throughout the state who permitted the use of their animals.

The first phase of the field studies (which lasted for about a year) was the shrinkage tests which were conducted with cattle.

Range cattle were driven into a working corral, and they were then placed in a Teco squeeze. Every other animal was injected with a tranquilizer, and all animals were identified as either treated or control. Both treated and control animals were then weighed.

The animals were divided into two groups, half going back to irrigated pasture for 13 hours, the other half going into a corral for an overnight stay without feed or water. There were treated and controls in each group.

After 13 hours the cattle on pasture were driven back to the corral and weighed. Half this group were then loaded onto a truck for a ten mile haul. The other half were driven around the corral for an hour. Then all the animals were weighed to determine shrinkage.

Meanwhile, the animals in the feedlot were allowed free access to feed and water for 30 minutes. They then were weighed to determine shrinkage.

## TRIAL 1—PER CENT SHRINKAGE 700-lb. Animals

Group	Dry Lot	Driven	Feed & Water	Total	Feed & Water
	13 hr.	10 mi.	½ hr.	% Shrink	14 hrs.
1 (T)	3.23	.67	+1.48	2.42	+2.5
2 (C)	4.20	.76	+2.90	2.06	+1.8
	Feed & Water	Trucked			
	13 hrs.	10 mi.			
3 (T)	0.88	1.24		2.12	
4 (C)	0.32	1.30		1.62	

## TRIAL 2—PER CENT SHRINKAGE 700-lb. Animals

Lot	On Pasture	Trucked		
	13½ Hrs.	10 mi.		
Lot 1 Controls	.76	1.4		8
Lot 2 Treated	3.1	1.4	30 min. on full feed and water	3
Lot 3 Controls	3.1	1.3		
Lot 4 Treated	4.1	.95		5

\* Presented at the CVMA Midwinter Conference, Davis, Feb. 2-4, 1959.

In the tests with weaner calves, the animals were taken from their mothers and placed in a dry lot. They were gate-cut into treated and control groups and were weighed. Half of them were injected immediately, while the other half were moved some distance and then injected. In the latter group there was a further breakdown, as some were trucked and some were driven. There were treated and controls in each group.

All animals were observed and weighed at set intervals after treatment—5 days, 15 days, 30 days and 45 days.

#### TRIAL 3—WEIGHT GAIN

Animals	Weaner Calves				No. Sick	No. Dead
	Av. Wt. at Treatment (lbs.)	Av. Wt. 15 days Later (lbs.)	Av. Wt. 30 Days Gain (lbs.)	Av. Wt. 45 Days Gain (lbs.)		
71 (T)	392	403	11	447	55	2
68 (C)	382	404	22	437.5	55.5	8

#### TRIAL 4—WEIGHT GAIN

Weaner Calves (just removed from mothers)

Group	% Hauling Shrinkage	Av. Gain 26 Days after Treatment (lbs.)	No. Needing Further Treatment
Steers:			
100 (T)	8.04	52.7	1
100 (C)		22.6	10
Heifers:			
100 (T)	8.2	27.1	2
100 (C)		28.7	18

#### TRIAL 5—WEIGHT GAIN

Weaner Calves

	Treated (45 head)	Controls (46 head)
Av. weight at treatment (lbs.)	409	406
Av. weight 14 days later (lbs.)	427	426
Av. weight 45 days later (lbs.)	443	439
Av. total gain (lbs.)	34	33
No. needing further treatment	0	5
No. deaths	0	0

#### TRIAL 6—WEIGHT GAIN

Weaner Calves (Using SKF 5019)

	Treated (32 head)	Controls (7 head)
Av. weight at treatment (lbs.)	334	326
Av. weight 31 days later (lbs.)	397	384
Av. weight 59 days later (lbs.)	438	420
Av. total gain (lbs.)	104	94
No. needing further treatment	0	0
No. deaths	0	0

#### TRIAL 7—WEIGHT GAIN

Weaner Calves

	Treated (30 head)	Controls (40 head)
Av. weight at treatment (lbs.)	444	436
Av. weight 17 days later (lbs.)	460	442
Av. weight 56 days later (lbs.)	506	490
Av. total gain (lbs.)	62	54
No. needing further treatment	1	5
No. deaths	0	0

Tranquilizers were also distributed to practicing veterinarians for use in grafting lambs. No controls were used in these trials.

#### TRIAL 8—GRAFTED LAMBS (No controls)

No. Treated*	First Treatment Effective	2nd Treatment Needed
33	31	2
* 25 mg.		

#### Conclusions

Results in these trials were not spectacular—and they do not necessarily agree with the successes reported by other workers. However, the shrinkage reduction in weaner calves did indicate that tranquilizers can be economically feasible; and California cattlemen are especially concerned about adjusting animals to a new environment, as well as the prevention of shipping fever.

During the tests, the tranquilized calves apparently adjusted themselves much more readily to their new surroundings than the control animals. They promptly returned to eating and drinking and did less fence-walking and bawling. They were easier to sort, haul and weigh—in many instances they were easier to drive. About three-fourths of the calves at the feed bunk were the tranquilized calves. Other observations were that the tranquilized calves showed less nasal discharge and a slight diarrhea.

Also of major concern to California livestock producers is the problem of shipping fever. The various causes of shipping fever have not been definitely determined, but at present we believe that it is caused by a bacterial or viral condition that takes hold under the stress conditions associated with the movement of cattle. These stress conditions make the animal more vulnerable to infection.

In these field tests, the tranquilized cattle exhibited fewer shipping fever symptoms, which indicated that perhaps the tranquilizers relieved many of the stress factors associated with shipping fever.

There is no accepted definition of stress, but it is generally thought of as abnormal physical or emotional pressures on an animal. Because the stresses related to shipping fever are not temporary, there is a need for a long-acting tranquilizer.

Among the various tranquilizers used in the field trials was a new long-acting product—SKF 5354-A—which is not yet commercially available. (SKF 5354-A results are shown in the Trial 6 chart.) It is estimated to be about 5 times as potent a tranquilizer as "Thorazine", and the necessary dosage is well under the amount that depresses motor activity. SKF 5354-A took effect more gradually, sometimes not reaching its effectivity level for 60 to 75 minutes. (Other tranquilizers took effect in 20 to 30 minutes.) The effects of SKF 5354-A lasted for 18 to 25 days, as compared to other tranquilizers which lasted only 3 to 5 days. Furthermore, it seemed to leave animals with fewer side effects. The long-acting tranquilizer may prove to be very beneficial in relieving stress factors associated with shipping fever.

## Laboratory Notes

From the Department of Clinical Pathology, School of Veterinary Medicine, University of California.

### Cerebrospinal Fluid in Large Domestic Animals

This review is the third in a series of articles concerning CSF in domestic animals.

#### The Normal Cerebrospinal Fluid

**Horse:** Data concerning the normal cerebrospinal fluid of horses originates mainly from the work of Behrens,<sup>1</sup> Roeder and Rehm,<sup>2</sup> and Fankhauser.<sup>3</sup> The normal fluid is clear and colorless, and contains a few lymphocytes and histiocytes. A few larger aggregates of bodies are occasionally observed which may be clumps of degenerated cells.

TABLE I—NORMAL C.S.F. OF HORSES\*

	Average (Range)
Pressure (mm. H <sub>2</sub> O) . . . . .	.379 (272 - 490)
pH . . . . .	7.25 (7.13 - 7.36)
Specific Gravity . . . . .	1.006 (1.004 - 1.008)
Viscosity . . . . .	1.0 (1.0 - 1.05)
Cells/cu. mm. . . . .	11 (4-23)
Calcium (mg.%) . . . . .	6.26 (5.55 - 6.98)
Phosphorus	
(inorganic) (mg.%) . . . . .	1.44 (0.87 - 2.20)
Magnesium (mg.%) . . . . .	1.98 (1.06 - 2.95)
Potassium (mg.%) . . . . .	12.66 (10.65 - 14.20)
Sugar (mg.%) . . . . .	57.2 (40 - 78)
Chloride (mg.%) . . . . .	737.03 (690.59 - 792.11)
Alkali Reserve (Vol.%) . . . . .	55.6 (41 - 67)
Total Protein (mg.%)	
Foals . . . . .	65.64 (43.75 - 77.0)
Mature . . . . .	47.58 (28.75 - 71.75)
Albumin (mg.%)	
Foals . . . . .	55.12 (37.63 - 68.87)
Mature . . . . .	38.64 (22.62 - 67.94)
Nonne-Apelt . . . . .	Opalesc. (Clear - Opalesc.)
Pandy . . . . .	++ (+ - ++++)
Cholesterol (mg.%) . . . . .	0.36-0.55 (0.25-0.51) - (0.48-0.65)

**Cow:** Information concerning the cerebrospinal fluid of cattle originates mainly from a monograph by Roeder and Rehm,<sup>2</sup> and studies by Carmichael and Jones,<sup>4</sup> Federow,<sup>5</sup> and Fankhauser.<sup>3</sup>

In over 250 cattle, the normal cerebrospinal fluid was water-clear and colorless. In the lumbar cerebrospinal fluid, however, it is not uncommon to observe a few small amorphous white flakes which are acidophilic in nature and most likely are simple concentrated masses of degenerating cells. The lumbar fluid is under 200 mm. H<sub>2</sub>O pressure and does not flow from the needle when the cow is in the standing position unless an excitable state is present. If there is a spontaneous flow, pathology may be present. The colloidal gold curves in cattle as well as the small ruminants and pigs are similar to those in humans. Gunther<sup>6</sup> reported vitamin C levels in the cerebrospinal fluid of normal cattle. He found average values of 1.45 mg.% in females, and 1.005 mg.% in males; healthy pregnant cows contained the

highest levels (2.3-2.5 mg.%) of vitamin C in the cerebrospinal fluid. Rossi<sup>7</sup> found cerebrospinal fluid urea levels to be between 6-12 mg.% in suckling calves.

TABLE II—NORMAL C.S.F. OF CATTLE\*

Specific Gravity . . . . .	1.005 to 1.008
Viscosity . . . . .	1.019 to 1.029
Surface Tension . . . . .	1.016 to 1.032
Depression of Freezing Point . . . . .	-0.54 to -0.55° C.
Alkali Reserve . . . . .	46.9 Vol.%
Calcium . . . . .	5.1 to 6.3 mg.%
Potassium . . . . .	11.2 to 13.8 mg.%
Organic Material . . . . .	28 mg.%
Ash . . . . .	700 mg.%
Cells/cu. mm. . . . .	0 - 10
Total Proteins . . . . .	16 to 33 mg.%
Globulin	
Nonne-Apelt . . . . .	Negative to Opalesc.
Pandy . . . . .	Negative
Sugar . . . . .	35 to 70 mg.%
Chloride . . . . .	650 to 725 mg.%

**Swine:** Information concerning the cerebrospinal fluid of swine has derived from the work of Lichtsteiner,<sup>8</sup> and Fischer and Starke.<sup>9</sup>

TABLE III—NORMAL C.S.F. OF SWINE

Appearance . . . . .	Clear, colorless
Cells/cu. mm. . . . .	1 - 20
Total protein . . . . .	24 - 29 mg.%, (up to 40 mg.%, according to Lichtsteiner)
globulin . . . . .	5 - 10 mg.%
albumin . . . . .	17 - 24 mg.%
Pandy . . . . .	Negative
Nonne-Apelt . . . . .	Negative
Sugar . . . . .	45 - 87 mg.%

**Sheep:** The data of Adamesteanu and co-workers<sup>10</sup> and Bagedda<sup>11</sup> have been summarized by Fankhauser.<sup>3</sup> The cerebrospinal fluid of sheep is a clear, colorless fluid resembling water. The fluid pressure in the horizontal position is 6-27 (av. 13) cm. H<sub>2</sub>O; but in the sitting position, it varies between 22-48 (av. 37) cm. of H<sub>2</sub>O.<sup>11</sup> Suboccipital fluid yielded lower cell counts and protein levels than lumbosacral fluid.

TABLE IV—NORMAL C.S.F. OF SHEEP

Cells/cu. mm. . . . .	0 to 15
Total Protein . . . . .	8 to 70 mg.%, (average range 29 to 42 mg.%)
Nonne-Apelt . . . . .	Negative
Pandy . . . . .	Negative
Sugar . . . . .	48 to 109 mg.%, (average range 52 to 85 mg.%)
Chloride . . . . .	750 to 868 (average 832) mg.%
Calcium . . . . .	5.77 mg.%
Magnesium . . . . .	2.86 mg.%
Colloidal Gold Test . . . . .	Similar to the cow

**Goat:** Fankhauser<sup>3</sup> reports the following values for the cerebrospinal fluid of goats from limited samplings. It is a clear, colorless solution as received from suboccipital puncture. 8 ml. can be removed in mature goats. There are usually about 3 small lymphocytes per cu. mm. and a total albumin level of near 12 mg.% with negative Pandy and Nonne-Apelt tests. The sugar is usually near 70 mg.% and colloidal gold test is similar to that of cattle.

\*See page 24 for bibliography.

\*From Fankhauser, Zentralblatt für Veterinarmedizin, Vol. 1, p. 138, "Der Liquor Cerebrospinalis in der Veterinarmedizin." Paul Parey, Publishers, Berlin and Hamburg.

## Cerebrospinal Fluid in Disease

**Horse:** In mal de caderas, a paralytic syndrome of horses in Argentina, *Trypanosoma equinum* is found in the cerebrospinal fluid.<sup>2</sup> In this disease, there is a strong cell reaction of lymphocytes and large mononuclears and elevations in the protein concentration up to 350 mg.%. The Pandy test is also positive.

Studies with 30 horses infected with Borna's disease, presented changes in the cerebrospinal fluid.<sup>12</sup> Pleocytosis appeared on the fourth day and varied between 32-100/cu. mm., not following the clinical symptoms. The Nonne-Apelt test was distinctly positive in many but showed only a trace in 5 cases. Pandy's test was always positive, with reactions between 1+ to 3+. Eight horses had elevations in the sugar content varying between 80-145 mg.%; however, most horses in the study exhibited decreased levels (14-37 mg.%) with cerebrospinal sugar to blood sugar ratios less than 0.5 in most cases. (Normal = 0.5-0.7).

Schultz<sup>13</sup> described a case of purulent meningitis in which the cerebrospinal fluid appeared yellow, stringy and with a cell count of over 1000/cu. mm., which were mainly neutrophils. Nonne-Apelt and Pandy tests were highly positive and the C.S.F. sugar was only 27 mg.%. *Spherophorus necrophorus*, *Micrococcus pyogenes* and *albus* were all found on culture. Fankhauser<sup>3</sup> described a horse with a severe purulent basilar meningitis originating from an alveolar-periostitis. The fluid was very turbid, contained blood cells, and exhibited a highly positive Pandy and Nonne-Apelt test. The fluid clotted after a short time and following bacteriological examination, *Micrococcus albus* was obtained.

Studies upon horses with encephalopathy ("Dummkoller") by Fankhauser<sup>3</sup> have resulted in variable results. Some of these horses, affected with clinical central nervous system symptoms, showed pathological changes of cerebral edema upon autopsy. Their fluids were water-clear; cells: 2-4/cu. mm.; total protein: 40-75 mg.%; Nonne-Apelt: trace; Pandy's test: a distinct positive; sugar: 50-54 mg.%; and the colloidal gold test had distinct peaks but not significantly different from control horses. In one case, xanthochromia, pleocytosis (70 lymphocytes, mononuclears, and histiocytes/cu. mm.) was observed as well as a slightly elevated cholesterol level (1.2 mg.%).

A case report concerning a foal (Fankhauser<sup>3</sup>) was described with a brain anomaly involving an internal and external hydrocephalus and a bifid cerebellum. All laboratory findings concerning the cerebrospinal fluid were in the normal range.

**Cattle:** Information concerning pathological changes in bovine cerebrospinal fluid comes mainly from the studies of Fankhauser.<sup>3</sup> There have been only a few other reports. Carmichael and Jones<sup>4</sup> in a study of "turning

sickness" (Uganda bovine encephalitis) found the cerebrospinal fluid to contain 10 cells/cu. mm. and the total protein level to be 34.3 mg.%. Cerebrospinal fluid in cattle with Rinderpest, Trypanosomiasis and "East-coast fever" did not deviate from normal. Moore<sup>14</sup> observed that calves deficient in vitamin A exhibited decreases in the vitamin C content and increases in the cerebrospinal fluid pressure as measured by spinal puncture. The return of vitamin A to the diet and not vitamin C or chlorobutanol, alleviated the symptoms and the cerebrospinal fluid pressure returned to normal.

Fankhauser<sup>3</sup> was able to differentiate various clinical syndromes involving the central nervous system by the examination of the cerebrospinal fluid:

1. Tuberculosis of the central nervous system:

- A. Progressive tuberculous meningitis with typical cerebrospinal fluid: These cows showed turbid fluids which exhibited xanthochromia and fibrinous nets. The fluid also showed an increased pressure and contained between 500-5,000 cells/cu. mm. (lymphocytes, histiocytes, endothelial cells and neutrophils). Total protein is usually between 300-1500 mg.% with highly positive Nonne-Apelt and Pandy tests. Sugar levels are between 27-59 mg.% while chloride values are near 650 mg.%. Colloidol gold curves exhibit steep curves in the midzonal sector and bacteriological culture yields *Mycobacterium tuberculosis*.

- B. Intracerebral tubercles with atypical cerebrospinal fluid. Tumor-like tubercles, which produce compression symptoms of the central nervous system, are accompanied by only a mild meningeal reaction. Cases observed<sup>3</sup> with cerebellar-pons infiltration exhibited the following changes in the cerebrospinal fluid: water clear, colorless, 16-70 cells/cu. mm. (many neutrophils), 40-70 mg.% of total protein. Nonne-Apelt and Pandy tests slightly positive, 47-59 mg.% of sugar, suspicious colloidal gold curves, and usually negative to bacterial growth on culture. According to Fankhauser, the clinical symptoms, cerebrospinal fluid analysis, and intradermal skin tests were all needed to establish the diagnosis.

2. Purulent Meningo-encephalitis.

This condition has been observed mainly in calves following umbilical infections, but occasionally is found in connection with liver abscesses in mature cattle.<sup>3</sup> Its differentiation from serous meningitis can be made upon examination of the cerebrospinal fluid. The fluid is usually turbid, whitish-yellow with fibrinous strings, and exhibits a normal to elevated pressure. Cell counts may be as high as 6000/cu. mm. (neutrophils) with total protein values up to 200 mg.%. The sugar is usually between 50-78 mg.% and bacterial cultures easily establish the presence of organisms.<sup>3</sup>

### 3. Non-purulent Meningo-encephalitis and Meningo-mylitis.

These fluids appear to be the result of disseminated inflammatory processes with perivascular infiltration of lymphocytes, and plasma cells in the brain parenchyma and the meninges. According to Schmid,<sup>18</sup> the properties of the cerebrospinal fluid are as follows: The fluid is usually clear and colorless, but sometimes turbid with fibrinous strings, 30-400 cells/cu. mm. (lymphocytes, mononuclears, and up to 30% neutrophils), total protein values up to 300 mg.%, and sugar levels as low as 34 mg.%.

### 4. Various Neurological Syndromes.

Minor changes in the cerebrospinal fluid are seen in cerebral edema, toxic meningitis, uremia, various tetanic conditions, botulism and possible epilepsy. The fluids in these conditions do not resemble the foregoing conditions.

**Sheep:** There is very little information concerning pathological cerebrospinal fluid in sheep. Corson<sup>10</sup> reported the presence of 70-79 Trypanosomes/cu. mm. and cell counts up to 4800/cu. mm. in the cerebrospinal fluid of sheep in the advanced stages of incoordination, convulsions, and circling. The Trypanosoma rhodesiense were held to the larger leukocytes by their posterior attachments. Sheep with encephalitis in our clinic have exhibited an increase in red blood cells and leukocytes, (30/cu. mm.) of which 30% were neutrophils, and 70% large and small mononuclears.

**Goats:** Ishii et. al.<sup>17</sup> reported the experimental reproduction of so-called lumbar paralysis or epizootic cerebrospinal nematodiasis in goats in Japan. Mosquitoes (Armigeres obtrubans) were artificially raised and fed the microfilaria of Setaria digitata. The infective larvae were dissected from the mosquitoes and inoculated subcutaneously into goats. Seven of nine goats showed neurological impairment with typical lesions in 14 days. Corson<sup>10</sup> reported the presence of Trypanosoma rhodesiense in the cerebrospinal fluid of goats (76/cu. mm.), with cell counts as high as 297/cu. mm.

**Swine:** Fischer and Starke<sup>9</sup> studied the cerebrospinal fluid in pigs experimentally infected with enzootic polioencephalomyelitis (Teschener-virus) and found that pleocytosis paralleled the severity of the clinical symptoms. Cell counts were found as high as 3,000/cu. mm. (mononuclears and neutrophils), and total protein levels climbed to 192 mg.%. Fankhauser<sup>3</sup> observed the Nonne-Froin's syndrome in one mature hog with a spinal cord compression from an abscess. Total protein levels were 2.5 gm.% with a cell count of only 3 mononuclears/cu. mm. This lumbar fluid contained fibrin and coagulated protein from a severe transudative process. Sorensen<sup>18</sup> observed increases up to 220 mm. H<sub>2</sub>O pressure in the lumbar cerebrospinal fluid in vitamin A deficient swine.

CHARLES E. CORNELIUS



J. H. GILLESPIE, left, and S. J. ROBERTS came from Cornell to address Midwinter Conference.

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## Public Relations Radio Scripts

Continuing from a previous issue of THE CALIFORNIA VETERINARIAN, we present additional questions and answers made from the Public Relations Radio Scripts under the direction of Dr. Kenneth G. McKay, Extension Veterinarian, University of California at Davis. The information contained in these scripts may be useful for radio broadcasts or news releases.

### Meeting on Mastitis Held for Veterinarians and Farm Advisors

Recently we held three meetings in different parts of the state to acquaint veterinarians and farm advisors with some of the new aspects of the research being conducted by members of the mastitis team at the School of Veterinary Medicine. Appearing on the program were David Gray and Daniel Noorlander, Department of Clinical Pathology, School of Veterinary Medicine; Martin Foley, Dairy Superintendent, Stockton State Hospital; and Kenneth G. McKay.

The purpose of the meeting was to discuss:

- a. A new approach to mastitis control.
- b. Mastitis vs. quality milk.
- c. Milking machine equipment.
  1. teat cups and liners;
  2. pulsators;
  3. controllers or relief valves;
  4. vacuum pumps;
  5. pipeline installations;
  6. milking techniques.
- d. The high spots of 30 years' observations on mastitis.

A series of training aid sheets was also passed out. They covered: the purpose of the California Mastitis Test (CMT); milk quality and milk inspection; milking techniques; sanitation practices; and malfunction problems in milking machine systems.

We met in Los Angeles with members of the Large Animal Section of the Southern California Veterinary Medical Association on October 16th; in Fresno with farm advisors from Fresno, Kern, Kings, Madera and Merced counties on October 28th; and in Modesto with members of the North San Joaquin Valley Veterinary Medical Association on October 30th. (A meeting scheduled for southern California farm advisors was cancelled due to conflict with a national goat meeting, but will be held later.)

Field trips were held in the Fresno and Modesto areas, taking in several problem mastitis herds, following the formal presentation.

### Milking Time and Mastitis\*

Q. Can we define "milking time"?

A. Milking time depends upon the number of milking machine units required to keep the milker

fully occupied with routine work. As related to the cow, milking time is determined by whether she is a fast or slow milker and what is the rate of her current milk yield. It also depends upon the mechanical factors of vacuum level and pulsation ratio.

Q. What is the maximum number of milking machines a milker can handle?

A. That depends upon the individual situation. Milkers should not handle so many machines that the routine work is too inflexible to manage cows properly. It has been our observation in the field that three machines is the maximum number that one milker can handle efficiently. In some instances, depending upon the milking time as related to the cow, even this number may be one too many.

Q. What are the causes of over-milking?

A. One cause is a milker using so many machines that cows are ready for machine stripping before he has completed his round of work on all units. The milking units are left on all cows for the same length of time, and many cows (the fast milkers and low producers) are considerably over-milked.

Research by the University of California mastitis team has verified that the advantages gained by widening the pulsation ratio to increase cow milking time may be offset by additional udder stress due to over-milking, unless the milker reduces the number of units.

Other causes that have been found in the field are distracting influences, such as visitors, "coffee breaks," and other deviations from the normal, during the milking hours. Barn structures which do not lend themselves to efficient milking cause milker exhaustion, which is reflected in improper milking procedures. For example, Peter Clough reported in the Farmers Weekly, May 10, 1957:

"There is evidence that the energy expended by the milker in milking cows is 50 per cent greater when the cows stand at the same level compared with when the cows stand 32 inches higher than the milker."

Q. What are the signs of over-milking?

A. Dairymen who keep CMT records will get their first warning from an increase in positive CMT cows. This is most noticeable in cows in advanced lactation. Another sign of over-milking is edema (slight puffiness) of the udder tissue, which is often incorrectly interpreted by milkers as incomplete milking.

Q. Can cow milking time be cut down, without adding additional milking units per milker, to increase operational efficiency?

A. Yes. In addition to widening the pulsation ratio, milking time can be cut down by making sure that all pipeline installations have enough air in the "cup" or "claw" to move milk through the milk hose rapidly. Milk moving sluggishly through the milk hose leads to extreme vacuum drops and fluctuations as the hose fills and empties. Pulsators with air inlets for moving the milk often are inadequate. Also, they frequently become plugged with debris.

Q. Does proper teat and udder stimulation decrease milking time?

A. Yes. Complete letdown, prior to placing the machine on the cow, definitely cuts milking time.

"It must be emphasized that total milking time is not so important as milking time per cow. Many farmers have bought extra units to reduce the time spent on milking, but there is a limit to the number of units which can be used efficiently, and any total time saved at the expense of a slower milking time per cow has been bought at too great a price both in terms of milk yield and freedom from mastitis."

(C. D. Wilson, "Factors that Predispose to Mastitis with Special Reference to Milking Technique," The Veterinary Record, February 22, 1958.)

\*Credit is due Mr. D. O. Noorlander, School of Veterinary Medicine, Davis, for his work with the writer in developing the questions and answers on: Milking Time and Mastitis.

### CVMA Women's Auxiliary News

The Women's Auxiliary of the CVMA held its annual winter luncheon meeting at the Sacramento Inn on February 3, and was attended by 95 women. The faculty wives of the School of Veterinary Medicine at Davis were hostesses for the social and business meeting.

Mrs. L. M. Julian is president of this group, and general chairman was Mrs. Oscar Schalm assisted by Mrs. George Hart and Mrs. Robert Wichmann.

Mrs. Reginald Stocking, Auxiliary president, welcomed members and guests, and conducted a short business meeting. The membership chairman reported a membership of 430 members. A highlight of the meeting was the presentation of the \$200.00 scholarship to senior veterinary student Norman Green of Davis, by the Scholarship chairman, Mrs. Louis F. Johnson of Sacramento.

Another highlight of the meeting was the musical program presented by two charming Davis coeds, Claudia Schalm, daughter of Dr. and Mrs. Oscar Schalm, sang 4 selections, accompanied by Nelda Volkert.

Mrs. Ernest Houchin of Ventura described the 10-day air trip to Honolulu which will start on June 24 as an adjourned meeting of the CVMA. A complete trip for two can be enjoyed for under \$1000.00.

President Elect Mrs. Ben Burdo told of plans for the June meeting to be held in Santa Monica on June 21, 22 and 23. Headquarters will be at the Miramar Hotel. Make your plans to attend this meeting. Your children will enjoy Santa Monica.

A Newsletter will be mailed out to all members in a few months, so please send news items to me so that it can be an interesting one.

Mrs. E. R. BRAUN, Publicity  
Box 21, Hanford, Calif.

### Wyeth Names Huber

Charles H. Huber has been appointed sales manager of the veterinary division of Wyeth International Limited, it was announced by Maurice L. Clancy, vice president.

Mr. Huber's experience in the pharmaceutical field includes sales positions both in the United States and abroad. His interest in the veterinary field stems from his education in agriculture and animal husbandry at Cornell University. After his graduation, he returned to Cornell and earned his master's degree in marketing.

### New Canine Hepatitis Vaccine

A new modified live virus vaccine of canine tissue culture origin has been just announced by Fromm Laboratories, Inc., Grafton, Wisconsin.

Known as Hepoid TC, the vaccine is recommended for immunization of dogs and foxes against infectious hepatitis.

### Colonel Transue Promoted At Diamond

Colonel V. Transue was recently promoted to Assistant Sales Manager at Diamond Laboratories in Des Moines, Iowa.

He has spent the past eleven years in the medical supply field, of which the last two were spent in Walnut Creek, California, as Western Regional Manager for Diamond.

Mr. Transue and his wife, Virginia, have a son, 8, and a daughter, 2. Both he and his wife attended Ohio State College.



COLONEL TRANSUE

### Blood Studies by Davis Researchers

Two scientific "firsts" have been chalked up by University of California veterinary researchers.

Blood studies at the San Diego zoo and on the Davis campus revealed (1) a North African sheep, the aoudad, has two distinct populations of blood cells circulating in its veins, the first such normal mammal ever reported, and (2) the first observed case of polycythemia vera—a cancer-like disease—in a beef steer.

By using radioactive isotopes to follow the career of the aoudad's red blood cells, Charles E. Cornelius and Jiro J. Kaneko of the School of Veterinary Medicine at Davis found that one population of blood cells had a survival time of 65 days while the other lived for 170 days. For comparison, man's red blood cells survive 110 days.

The new information may help scientists in classifying animals according to their evolutionary development, said Cornelius. The team, which includes Mathematician Donald C. Benson, is now studying the life span of blood cells in the domestic sheep and in horses. Their work is being supported by the California Thoroughbred Association, which is interested in searching out the causes of anemia in race horses.

The unique case of polycythemia in a yearling steer will give the Davis investigators a rare opportunity for experimentation with a disease that also affects man. Investigators Murray Fowler, Cornelius and Norman Baker, of the School of Veterinary Medicine, found that the sick steer was producing a riot of red blood cells. Typical signs of the disease—disorientation, blindness, reddened membranes of eyes and nose, an excess number of red cells—were present. Radioactive isotope techniques were also used in this investigation.

## Ketosis of Cattle\*

S. J. ROBERTS, D.V.M., *Cornell University*

Clinical ketosis is a metabolic disorder which is intimately associated with the animal's nutritional status and is characterized by hypoglycemia and excessive production of ketone bodies. It is superimposed upon lactation and precipitated by one or more non-specific factors causing a subnormal nutritional intake.

In other words, we think of this as a metabolic disorder based upon subnormal nutritional intake and superimposed upon lactation. We see ketosis in heavy producers at the peak of production the first 1-2 months after freshening.

The high incidence in certain herds and certain years; the lack of it in the spring months in New York when our cows are going on pasture and can get all the feed they desire; the ability to correct by feeding adequate levels of grain and high quality roughage all indicate that this is basically a nutritional problem.

I think that if all cows were fed a ration like that of early spring pasture ketosis would seldom be observed. This requires, of course, that excellent quality roughage in large amounts as well as the proper amounts of grain be fed. I feel that the condition can be likened to a teeter-totter with lactation balancing TDN. Factors which bring this out of balance are those which we must consider as the various miscellaneous conditions leading to ketosis.

As milk production rises following freshening so must feed intake increase. If the feed is limited or inadequate the cow will draw on her body resources to maintain production until they are exhausted and then production must decline. In recent years with the advent of AI and the rapid improvement of production in our cows we have many dairymen and veterinarians who fail to realize that it takes twice as much feed to produce 80 lbs. of milk as it does 40 lbs., and many farmers are feeding cows that are capable of producing 80 lbs. of milk with the feed for 40 lbs. and then wondering why they are having troubles.

In the cow very little carbohydrates as such is taken from the digestive tract. The rumen organisms utilize the carbohydrates and produce acetic, butyric and propionic acids which supply much of the energy needs of the cow. This is why the cow has a low glucose level (40-60 mg. per cent) in the blood while young calves and non-ruminants will have from 100-120 mg. per cent. The cow uses propionic rather than glucose for energy needs.

The principal cause of ketosis then is the im-

balance between feed intake and milk production. Those things which tend to precipitate this very frequently which I think the dairy-men fail to realize are:

1. Allow cow to get too fat during the dry period and after freshening giving subminimal feed to burn off the fat until in good shape. Rather, they should be kept in "good working condition" so that after freshening the feed may be increased to meet her production.
2. After parturition many will hold down the feed intake to reduce udder congestion and udder cake. They will hold down feed for 1-2 weeks. The level of feeding has no effect on this condition. It is a hereditary condition and no feeding process will reduce it.
3. Certain silage is high in butyric acid content and feeding this will predispose to ketosis in a herd. This is the so-called "rank, sour" silage particularly that from the bottom of silos.
4. Cows in heavy lactation should be fed sufficient good quality roughage and grain to maintain body weight during production.
5. Consistency of feces in good condition is like "loose porridge" and is good indicator of feed adequacy.
6. Any disease depressing the feed intake without depressing milk production.
7. Feed deficiencies in certain areas, irregular feeding as seen often on show circuits, having to travel long distances to get water, etc.

Clinical signs are very important. The Roth test alone is not adequate to diagnose ketosis. In our experience from 80 to 90 per cent of fresh high producing cows will show positive Roth tests and they do not have ketosis. The cow should therefore be examined more carefully. We watch for:

1. Loss of weight.
2. Drop in milk which is the first symptom seen by the dairyman.
3. Progressive anorexia. Go off silage first, then concentrates, and finally off hay.
4. Feces are hard and dry, pulse-temp.-respiration usually normal.

They claim that the normal ketone blood level in the non-lactating cow is 5 mg. per cent yet we commonly see blood levels of 15-20 mg. per cent in high producers and they are quite normal so I think that we ought not base our diagnosis solely on a ketone test. The Roth test is more accurate on milk for diagnosing clinical ketosis than it is on urine.

In a few cases we see nervous forms and in a few instances we have had very marked hyperesthesia associated with ketone titers in the urine which we suspect are due to hypomagnesemia and that the ketosis is secondary.

\* Presented at the CVMA Midwinter Conference, Davis, Feb. 2-4, 1959.

Therapeutics are successful only to the extent that the balance between milk production and feed intake is restored and blood glucose and liver glycogen are raised and maintained. All treatments of proven value have the ability to raise the glucose and glycogen level. Once the appetite is restored by any method of treatment, the nutrient intake should be increased to meet the demands of lactation or relapses will occur. Sometimes the dairyman can't do much about this if his roughage is very poor. He can increase his grain to a certain extent but not as much as he would like to. Some cows have the inherent capacity to produce more milk but lack the inherent capacity to utilize the necessary feed to maintain this level of production. In other words the concentrates can be increased to a point where the cow is unable to utilize them and she goes off feed. In some cases the milk production will decline to the level of feeding and no more ketosis will occur.

Intravenous glucose is the most common treatment and is usually successful if the feed intake is raised. Oral dosage with  $\frac{1}{4}$ - $\frac{1}{2}$  pound of sodium propionate in a cup of water or 100-300 ml. of propylene glycol administered orally once to twice daily for from two to six days will snap most out of ketotic symptoms because it supplies propionate. The older treatment of  $\frac{1}{2}$ -1 ounce of Chloral hydrate is still used for the nervous forms of ketosis. The Cortisone-ACTH products are used in the more valuable cows since it will cause them to snap back within a few hours. With all of these you must increase the feed or they will relapse. The older method of spraying molasses on feed is valuable only in that it tends to increase the feed intake.

Any case which fails to respond should be examined for complications. Metritis is the most common finding as a complicating factor.

Ketosis then, is something which we should work over with the dairyman who is having a herd problem as it is a nutritional problem and not a disease.

#### Veterinarians in the News

Dr. Charles H. Ozanian, president-elect, CVMA, will represent the association at the XVIth International Veterinary Congress, May 21-27, 1959, in Madrid, Spain.

Dr. William J. Zontine, past president CVMA, has been elected 2nd vice president of The Association of American Boards of Examiners in Veterinary Medicine, an incorporated group consisting of state boards of veterinary medical examiners.

Dr. Gaylord K. Cooke, Berkeley, has been elected to the National Board of Examiners in Veterinary Medicine, AVMA.

Dr. Ernest A. Siegel, San Francisco, has been appointed by President Stowe, CVMA, to the Governor's Medical Advisory Committee on Disaster.

#### It's Your Group Workmen's Compensation Insurance Plan!

Available now to all members of the California Veterinary Medical Association is an excellent Group Workmen's Compensation Insurance Plan.

Established in July 1958 through the cooperation of your Association with the brokerage firm of Atkinson, Clayton & Atkinson and California Compensation & Fire Company.

Dividend return to members who participate in this plan are potentially many times greater than on an individual basis.

Plus benefit of Cal Comp's experience and skill in safety engineering, prompt claim handling and personalized service.

Participate in this excellent Group Plan by instructing your broker to place your Workmen's Compensation coverage with Cal Comp or have Atkinson, Clayton & Atkinson, 2881 El Camino Real, Redwood City, do this for you on next renewal.

Success of this Group Plan depends on the participation of a large majority of the total membership of the Association.

Save Money by reducing the net cost of your Workmen's Compensation coverage through your Association's Group Plan with California Compensation & Fire Company, a California stock company whose 26 years of specialization in Workmen's Comp assure you the finest in coverage and service.

#### Dr. Feldmann New Prexy of California Alumni

Anthony W. Feldman, Glendale veterinary practitioner, has been elected president of the California Aggie Veterinary Medical Alumni. He succeeds Wilson B. Lewis, who practices at Auburn.

The veterinary alumni group, meeting at Davis Tuesday, February 3, in connection with the Midwinter Conference of the California Veterinary Medical Association, named Norman Fohrman of Redondo Beach as secretary-treasurer.

Topping the 1959 plans of the Davis veterinary alumni will be a project to develop a scholarship program for California veterinary students.

#### Dr. Kucera Joins Research

Dr. Carrell J. Kucera has joined Research Laboratories, Inc., as an associate in biological research according to an announcement by RL's president, True Davis.

In his new position, Dr. Kucera will direct development work in tissue culture, virology and bacteriology. He will be stationed at Research Experimental Farms in St. Joseph, Missouri.

# Practical Laboratory Screening Procedures\*

W. J. ZONTINE, D.V.M., *Practitioner, Lancaster, Calif.*

The role of the laboratory in the practice of veterinary medicine is a well established fact. Available to the practitioner are literally hundreds of tests many of which have definite application and significance in animals. The decision as to which of these laboratory examinations to employ is a problem with which we are constantly confronted. This problem can be made considerably easier by development of a definite routine of laboratory tests. A properly conducted physical examination consists of an orderly progression of observations, each of which produces a clue from which a conclusion can be reached. Likewise we should introduce orderly thinking and routine into our laboratory work in order to derive the greatest amount of value.

I should like to describe for you a practical routine which we regularly employ in our hospital. It should be borne in mind that it is equally as important to screen out the normals as it is to detect the abnormals. Whenever possible one should utilize screening examinations. In order to qualify as a screening examination the test:

1. Must be a relatively simple procedure;
2. Must not be too time consuming;
3. Must not be prohibitively expensive, and
4. Must render useful information.

The tests are divided into three main categories: 1. Blood; 2. Urine, and 3. Feces.

## I—Examination of the Blood

(a) *Microfilaria*: No blood examination in the dog is complete without a check for microfilaria. This is the first examination we perform as we utilize a drop of fresh blood on a slide covered with a clean coverslip. The specimen should be examined quickly before it has a chance to clot. The typical motion of the parasite can readily be seen in this preparation.

(b) *Clotting Time*: Either the drop-slide method or the capillary tube technique can be utilized for clotting time. One of the commonest conditions in the dog characterized by prolonged clotting time is infectious viral hepatitis.

(c) *Hematocrit*: The work of Schalm has established the usefulness of the hematocrit in veterinary medicine. We use a microcentrifuge for this test which gives us an accurate reading in 4 minutes. From this the hemoglobin and erythrocyte determination can be computed. The Wintrobe tube method renders an estimation of leucocyte count in addition.

(d) *Erythrocyte Sedimentation Rate*: Even though this is a non-specific test it has value as an aid in diagnosis and prognosis and in fol-

lowing the course of the disease process. Alteration of the sedimentation rate is often associated with changes in the serum proteins.<sup>6</sup> The Wintrobe method has a high degree of accuracy although an estimation can be obtained using a heparinized capillary tube taped in an upright position.

(e) *Leucocyte Count*: This is a particularly valuable examination in small animals as it renders quite specific information. The leucopenia of many viral diseases and the leucocytosis usually associated with bacterial diseases can be quickly detected. Although a rather wide range of normality is reported,<sup>3</sup> for all practical purposes we consider the normal count in the mature dog as 10,000 to 12,000 leucocytes per cu. mm. of blood and up to 16,000 in the immature dog.<sup>1</sup> An expensive pipette shaker is a very useful and time-saving piece of equipment.

(f) *Icteric Index*: I hesitate to set a numerical value on the degree of icterus in the serum. Rather an estimation can be made by visually examining the serum in the hematocrit tube.

(g) *Stained Blood Smear*: A valid leucocyte count should be evaluated in the light of the findings on a stained smear whenever possible. There are times when it is not possible to conduct a detailed examination of the smear due to time limitations. However, the smear should be obtained for later study if necessary. Commonly used stains are Wright's and Giemza. Wright's is the stain of choice, but it is not as easy to use nor is it as stable as Giemza.

(h) *Blood Urea Nitrogen*: The high incidence of kidney disease (notably leptospirosis) in the dog makes this an essential step in any thorough screening examination. A rapid 2-minute test has been devised by Scribner<sup>7</sup> which is quite accurate in ruling out normal values. If high readings are indicated, more involved and accurate tests can be utilized.

## II—Examination of the Urine

The development of rapid urinalysis technique has greatly simplified this phase of the screening examination. Sensitive paper strip or drop tests are commercially available for protein, sugar, bilirubin and pH. The essential steps we utilize in the urinalysis are:

(a) *Sample*: Is it AM, PM, overnight concentrated, catheterized or not? It is important to know these facts first before proceeding.

(b) *Color*: Light yellow, dark yellow, amber, etc.

(c) *Clarity*: Turbid, clear.

(d) *Specific Gravity*: Whenever possible we utilize an overnight concentrated sample after a 12 to 18-hour water fast as this gives an immediate index of kidney function.<sup>1</sup> I personally consider specific gravity as the most important single test in a urinalysis.

\* Presented at the CVMA Midwinter Conference, Davis, Feb. 2-4, 1959.

(e) pH: The nitrazine paper test is quite accurate.

(f) Protein: Either Robert's test or the paper strip test is a simple, accurate procedure.

(g) Sugar: We have found the tablet test to be more sensitive than the paper strip.

(h) Bilirubin: Readings of plus 1 or 2 should not be viewed too critically as the normal canine kidney has a very low threshold to bilirubin.

(i) Chlorides: This gives an estimation of plasma chloride levels and sometimes information as to necessary electrolyte replacements<sup>2, 5</sup>.

(j) Microscopic: Sometimes a little stain such as a drop of 1 per cent gentian violet mixed with sediment on the slide makes differentiation of the elements easier.

These are the steps we routinely conduct although there are others such as indican, occult blood, acetone, etc., which can be performed if indicated in the specific case.

### III—Examination of the Feces

A great deal of useful information is derived from a fecal examination and should always be included as a screening examination. A thorough examination includes the following:

(a) Color: dark, light, black, white, clay-colored, etc.

(b) Odor: normal, rancid.

(c) Character: fluidity, formed, hard, covered with mucus, bloody.

(d) Undigested residue: fat, protein, starch.

(e) Abnormal material: grass, grain, paper, dirt.

(f) Parasites: This includes both macroscopic and microscopic parasites. In addition a fresh portion of feces mixed with a drop of water under a cover slip should be examined for such things as amoeba, spirochetes, and other motile organisms.<sup>4</sup>

I can assure you that the foregoing routine is not impractical for anyone with a reasonably well-equipped laboratory or anyone truly interested in a complete, thorough laboratory examination. The time and money expended are not prohibitive and the results are usually most gratifying, in many cases pointing directly to a particular condition or at least to an avenue of investigation.

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<sup>7</sup>Scribner, B. H., Lile, E. C., Villamil, M. T., and Rhees, M. C.: "Beside Determination of Urea Nitrogen in Serum or Plasma," *J.A.M.A.*, 164:3 (May 18, 1958), 277.



## BOOK REVIEW



DR. SQUIBB, by Lawrence G. Blochman. Published by Simon and Schuster, 371 pages, including index; price \$5.00.

The medical professions owe an eternal debt of gratitude to Dr. Squibb, for it was he who gave us the first pure drugs and the first pure food and drug law. As a Navy doctor he was appalled by the adulterants and contaminants in the medicines he was supposed to use, and after a good deal of struggle, he invented an apparatus to produce the first pure, standardized ether under the auspices of the Navy. He went on to set up his own pharmaceutical house, producing pure drugs for the medical profession. In his day, pharmaceutical merchandising was strictly commercial, and adulterating drugs was considered smart business and not frowned upon. It was for this reason, probably, that although Dr. Squibb was able finally to get a pure drug law passed in New York and New Jersey, he could not get a federal law passed—this job was done by one of his disciples after his death.

Dr. Squibb's establishment was what we would call an ethical house. In fact, medical ethics was also one of the ideals he fought for. He made pharmaceuticals only for the medical professions.

The biography of this fabulous man was drawn from his own voluminous journals, which contained records of everything he did and thought for most of his life. The book is recommended as containing information the medical people should have, and a reminder that one honest man can move mountains, and benefit not only his profession but the public as a whole. It is a worth-while book to add to a veterinarian's library.

MARY K. DUNLAP, D.V.M.

### FOREIGN REVIEW

S. Z. ZAKS, D.V.M., Los Angeles

Khomiakov, A. M., Mendelevich, M. M. and Gonin, S. L.: On the role of dehelminthization as a factor stimulating immunogenesis in horses producing antitoxic sera. *J. Microbiology, Epidem., and Immun.*, 1957, Vol. 28.

The material presented points to the need for widespread application of rational methods of dehelminthization in anti-serum production practice. Such method, according to the authors, should lead to a prolongation of the usefulness of the horse in producing antisera of high titre.

# **The CVMA's 71<sup>st</sup> Annual Meeting**

**JUNE 21, 22, 23, 1959**

## **Miramar Hotel, Santa Monica**

Overlooking the Blue Pacific, 20 minutes from Hollywood

Make your Reservations NOW, at the Miramar Hotel  
(official headquarters)



**Golf . . . Cocktail Party**

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**CVMA's Hawaiian Holiday (Adjourned Meeting)**

10-day tour, all inclusive, \$477.77 per person double  
\$490.05 per single person

Leave Airport, June 24 — Return Mainland, July 2

Deadline for reservations — APRIL 15, 1959. If interested, mail check  
for \$50, deposit, to Dr. E. H. Houchin, 40 W. Santa Clara St., Ventura



*Complete program for the Santa Monica Meeting will appear in the  
May - June issue of the*

**CALIFORNIA VETERINARIAN**

# Poultry Practice as a Part of General Practice\*

C. D. LEE, D.V.M., M.S.

*Extension Poultry Pathologist, Iowa State College*

Veterinarians in general have not concerned themselves to any great extent with their clients' poultry problems. Many excuses are offered: commonly heard are the "lack of time in a large, busy practice to take on more work"; "lack of knowledge of poultry disease problems"; "competition with non-professional people"—feed companies, hatcheries, service men and remedy companies.

It is well recognized that it has been, and still is, a difficult procedure to a practicing veterinarian in including poultry as a part of his general practice. However, we believe that a practicing veterinarian is as responsible to his clients in poultry disease control as in control of other livestock diseases.

Rapid changes have marked, and will continue to mark, the development of the poultry industry. The veterinarian who desires to include the prevention and control of poultry diseases as a part of his service must recognize that poultry production is more specialized and integrated than any of our other livestock enterprises. Great advancements in the quality and type of birds, housing and equipment, methods of disease prevention and control, formulation of diets, and marketing of poultry products account for the significant specialization and integration of the poultry industry.

The poultry practitioner must become familiar with the interrelated and integrated organizations that make up the poultry industry. He must be able to converse with the poultryman on general industry topics outside the realm of disease prevention and control. The veterinarian must be familiar with the disciplines of disease prevention and must counsel with his client regarding the application of preventive measures.

The poultryman expects and should receive outstanding service from the practitioner diagnosing his problems. It is in this area that the veterinarian should excel. A rapid and accurate diagnosis cannot be overemphasized. While clinical diagnosis based on the objective review of the case history, signs exhibited by the ailing birds, and lesions observed at necropsy are most valuable, the utilization and application of laboratory procedures in conjunction with the clinical observations provide the most effective approach.

In the effort to meet the changing and advancing methods of livestock production, the veterinarian must concern himself with improving his services—through more effective, accurate methods of diagnosis and a strengthened knowledge of disease prevention. The old philosophy of "emergency control," with its "trial and error" medication and its

dependency on nature to permit a majority of a population to survive an outbreak of disease, must be discarded if the veterinary profession is to support a healthy, productive livestock industry.

In developing a program to interest Iowa practicing veterinarians in poultry practice, three principle objectives were considered:

First, to inform veterinarians on poultry disease problems, management and disease prevention; second, to encourage and assist in establishing diagnostic facilities; and third, to develop good public relations between practitioners and the poultry industry.

The first phase was accomplished by conducting extensive off-campus short courses on poultry diseases for veterinarians through the district veterinary medical associations in Iowa, of which there are 12. The course is presented one afternoon and evening a week from 4:00 to 6:00 and from 7:00 to 10:00 for seven consecutive weeks. The course includes discussions on poultry husbandry, physiology, pharmacology, nutrition, management, equipment and housing, poultry diseases, and laboratory diagnostic techniques and equipment.

The course has been requested by, and given to, members of 13 district associations with an attendance of 605 veterinarians. At the end of the course a mimeographed compilation of all material is given to all regular attendants.

Throughout the entire course, emphasis is placed on the necessity of an accurate diagnosis either by post mortem examination or by post mortem examination and culture. The need for autopsy of several specimens and visits to farms is also emphasized.

This brings us into our second phase: establishment of a diagnostic facility. Upon request of a veterinarian we make trips to his office to assist him in locating his laboratory facilities, make drawings for tables, cabinets, etc., furnish lists of equipment, names of commercial equipment companies, catalog numbers and price lists. When the laboratory is completed and the equipment has arrived, a second trip is made and a day or more is spent in autopsy technique preparation, sterilization and use of media. Sample cultures of bacteria that cause poultry diseases are furnished by the Department of Veterinary Hygiene to the practicing veterinarian for practice work in culturing and bacterial identification. Several trips are made later to assist the veterinarian in his diagnostic and serological work.

At present we have either completed, or are in the process of completing, 79 diagnostic facilities established by practicing veterinarians.

\* Presented at the CVMA Midwinter Conference, Davis, Feb. 2-4, 1959.

# Prevalent Mastitis Pathogens in California and Their Antibiotic Sensitivity

A. C. PIER, D.V.M.; M. J. FOSSATTI, B.S.

School of Veterinary Medicine, University of California

Interest in testing mastitis pathogens for sensitivity to various antibiotics prior to formulating treatment at the herd level has been shown by dairymen and veterinary groups throughout California.

This laboratory instituted antibiotic sensitivity testing, using commercially available test discs in 1954, and for the last 3 years has applied such tests routinely to pathogenic types of bacteria isolated from milk samples submitted by practitioners. It is the purpose of this paper to summarize the results of these tests as well as the types of bacteria isolated from such milk samples during 1957.

A total of 880 milk samples was submitted by 39 practitioners from 85 herds extending from the southern San Joaquin Valley to the Oregon border. Samples from 72 herds (84.7%) contained coagulase positive *Micrococcus pyogenes* (staphylococci); 31 herds (36.4%) shed *Streptococcus agalactiae*; 11 herds (12.9%) shed *Pseudomonas aeruginosa*; and from 4 herds (4.7%) *Nocardia asteroides* was cultured.

The prevalence of these organisms in samples submitted from the respective herds is given in Table I.

TABLE I

Bacteria	% Herd Shedding Pathogen	% Positive Samples from Shedding Herds
Staphylococci ( <i>M. pyogenes</i> )	84.7	61.2
<i>Streptococcus agalactiae</i>	36.4	23.8
<i>Pseudomonas aeruginosa</i>	12.9	18.1
<i>Nocardia asteroides</i>	4.7	13.7

## Drug Sensitivity Testing

The accuracy of concentrations of drug contained in commercially available test discs has been challenged. However, it is the feeling at this laboratory that where frequent use and limited interpretation is made of test results, they constitute a tool too valuable to discard.

A summary of sensitivity tests conducted during 1956 and 1957 is given in Table II. Our testing procedure includes single colony isolation prior to inoculation of the test plate and, in general, the use of lowest available concentration test discs. Direct comparisons of efficacy between drugs should not be drawn from such a summary, for it should be noted that drug concentrations vary between 2 mcg. and 100 mcg.

Table III presents a similar summary of 202  
(Continued on page 42)

TABLE II—Drug Sensitivity of Mastitis Pathogens, 1956-1957

		Tetra. (1)	Aureo. (2)	Terra. (3)	Chlor. (4)	D.H.Str. (5)	Pen. (6)	Eryth. (7)	Alba. (8)	Neo. (9)	P.Myx. (10)	Fur. (11)
M. Pyogenes (412)*	S	93.8	95.1	90.6	90.6	79.9	65.3	96.6	98.3	74.9	12.1	98.5
	R	6.2	4.9	9.4	9.4	20.1	34.7	3.4	1.7	25.1	87.9	1.5
St. Agalactiae (31)	S	100	100	100	100	37.5	100	100	100	7.7	0.0	100
	R	0.0	0.0	0.0	0.0	62.5	0.0	0.0	0.0	92.3	100	0.0
Other Streptococci (21)	S	100	100	83.3	100	31.3	100	100	100	6.3	0.0	95.9
	R	0.0	0.0	16.7	0.0	68.7	0.0	0.0	0.0	93.7	100	5.0
St. Uberis (5)	S	100	100	100	100	25.0	100	100	100	33.3	.....	100
	R	0.0	0.0	0.0	0.0	75.0	0.0	0.0	0.0	66.7	.....	0.0
Ps. Aeruginosa (27)	S	0.0	0.0	0.0	26.1	38.5	0.0	0.0	11.1	17.4	20.0	6.7
	R	100	100	100	73.9	61.5	100	100	88.9	82.6	80.0	93.3

(1) Tetracycline 5 mcg  
(2) Aureomycin (R) 5 mcg  
(3) Terramycin (R) 5 mcg  
(4) Chloromycetin (R) 5 mcg

(5) Dihydrostreptomycin 2 mcg  
(6) Penicillin 2 units  
(7) Erythromycin 2 mcg  
(8) Albamycin (R) 30 mcg

(9) Neomycin 5 mcg  
(10) Polymyxin 5 mcg  
(11) Furacin (R) 100 mcg

S = Denotes Sensitive  
R = Denotes Resistance  
\* = Number of Strains Tested

TABLE III—Antibiotic Sensitivity of *M. Pyogenes*, 1955-1956

		Aureo- mycin	Baci- tracin	Chloram- phenicol	Dihydro- strep- tomycin	Peni- cillin	Poly- myxin	Terra- mycin	Neo- mycin
M. Pyogenes (202)	S	96.5	98.3	99.0	85.6	70.9	33.5	94.0	93.6
	R	3.5	1.7	1.0	14.4	29.1	66.5	6.0	6.4

S = % Sensitive Strains  
R = % Resistant Strains

## LOCAL ASSOCIATION NEWS

### Alameda-Contra Costa VMA

On March 25th, Dr. Peter Kennedy, pathologist, School of Veterinary Medicine, Davis, spoke on "Diseases of the Canine Heart," before a large audience at Spenger's Fish Grotto, Berkeley.

At the April 29th meeting, scheduled for the Leamington Hotel, Oakland, Dr. G. B. Schnelle will talk to the group at a telephone meeting from Boston, Mass. His subject will be "Hip Dysplasia."

\* \* \*

### Bay Counties VMA

Dr. E. W. Paul has organized a symposium for the April 14th meeting of the BCVMA, consisting of Dr. J. K. Perry, "Helpful Hints on Ear Trimming"; Dr. Robert York, "Steatitis in Cats Fed Canned Red Tuna"; Dr. W. K. Smith, "Complete Resection of the Ear Canal"; Dr. R. M. Grandfield, "An Unusual Case of Congenital Lameness in a Great Pyrenees", and Dr. E. W. Paul, "Anaesthesiology." Don Mahan, executive secretary of the Southern California VMA, has been invited to the meeting which will be held at Veneto's Restaurant.

\* \* \*

### Southern California VMA

A highly successful symposium was held in the Ambassador Hotel, March 4th. The symposium featured skeletal diseases. Participating were Drs. James Archibald, B. F. Hoerlein, Jacques Jenny and R. L. Rudy.

\* \* \*

### AAHA to Meet in Colorado Springs

The American Animal Hospital Association will hold its 26th annual meeting at Colorado Springs, May 6-9, 1959. Dr. Harlen E. Jensen, program chairman, has planned a two and a half day program of rostrum and television presentations.

### Deductibility of Expenses

There are some general principles which apply to deductibility of expenses incurred while attending professional and scientific meetings which contribute to the professional knowledge and skills of veterinarians.

Certain expenses are allowable, for instance, to veterinarians attending the XVIth International Veterinary Congress in Madrid, Spain, May 21-27.

For specific rulings or interpretations you should submit your questions in writing to the Commissioner of Internal Revenue, Washington 25, D.C.

### Examinations to Be Held

The Board of Examiners in Veterinary Medicine announce that examinations will be held June 11, 12 and 13, 1959, at the School of Veterinary Medicine, Davis.

## OPPORTUNITIES

### Relief Work

Available for relief work; experienced; California license. Dr. J. Guthrie Blue, 2121 East Second St., Tucson, Arizona.

\* \* \*

### For Sale

Will sell small animal practice and hospital; center San Fernando Valley. Excel. opportunity; valuable real estate. Should gross \$40,000 this year. For particulars write Box A-73, THE CALIFORNIA VETERINARIAN.

\* \* \*

X-Ray machine in use now by physician and surgeon. Fischer, 60 MA-90 KV, Bucky diaphragm. Shock proof. Tilt table. Two, size 14 by 17 and two 8 by 10 cassettes. Complete dark room. Dr. T. L. Morgan, Jr., 323 Geary St., San Francisco.

\* \* \*

### Services

Histology microscope slides prepared for veterinary pathology and research. Ten years' experience guarantees unsurpassed workmanship. Fast mail service. Write your needs. Bay Histology Service, 409 Roosevelt Way, San Francisco 14, California.

\* \* \*

### Help Wanted

Interested in experienced associate, leading to partnership or ownership. General practice. Dr. R. L. Griffith, Box 213, Inverness.

\* \* \*

Associate veterinarian desired. Work in modern hospital with two other veterinarians. Member of A.A.H.A. Write Dr. Irving Roberts, 9884 MacArthur Blvd., Oakland.

### Applicants

Marvin L. Samuelson, San Pedro. Vouchers: Wilfred M. Crow, Robert J. Streeter.

Melvin C. Burns, Tulare. Vouchers: L. H. Brazil, Floyd A. Elliott.

A. L. Bullock, Auburn. Vouchers: R. T. Hauge, R. C. Scott.

DeVon M. Terry, Corona. Vouchers: Robert E. Philbrick, C. A. Maeda.

### Dr. Seymour Roberts Named to Board of Examiners

Dr. Seymour R. Roberts, Richmond, has been appointed to the Board of Examiners in Veterinary Medicine by Governor Edmund G. Brown. The term is for four years.

## In Memoriam

### DR. JERROLD W. COLE

Dr. Gerrold W. Cole, 30, was instantly killed in a 2-car collision near Exeter, on February 6, 1959. Dr. Cole, a graduate of the University of California, 1954, practiced in Visalia.

THE CALIFORNIA VETERINARIAN

## Proposed Changes in Constitution and By-Laws, CVMA

This is a combined report of the Ways and Means Committee and the House of Delegates Committee. These will be submitted for approval and adoption by the members at the Business Meeting to be held June 23, 1959, at the Hotel Miramar, Santa Monica.

### REPORT

These committees, in cooperation and consultation with the Executive Committee of the California Veterinary Medical Association, have undertaken the task of preparing the essential changes to the Constitution and By-Laws of our association.

We believe it of prime importance for all members to know that representative government is the goal and that the proposed changes are designed to provide not only this immediate objective, but the framework upon which future growth and development will rest.

Some important considerations are:

- (1) A House of Delegates is created.
- (2) Constituent Associations are defined and future development provided for.
- (3) Duties and Authority of the House of Delegates, Executive Committee, Executive Secretary, and other officials are defined.
- (4) The Treasurer will be appointed annually by the Executive Committee, subject to approval of the House of Delegates.
- (5) Provisions for amending the Constitution and By-Laws have been changed requiring written presentation to the Executive Committee, introduction at the next meeting of the House of Delegates, publication of such proposed amendments with sufficient time for careful consideration by the general membership before final action at the annual meeting of the House of Delegates.
- (6) Special assessments are defined and the mechanism established by which referral to the general membership for mail vote is assured.

It is our hope and expectation that these changes will bring about an organization able to represent all aspects of veterinary medicine and one which will faithfully look after the interests of veterinarians throughout California. Your most careful scrutiny and constructive comments are now sought in order to successfully complete this work with an affirmative vote in June.

Respectfully submitted,

Charles J. Parshall, Chairman, HOUSE OF DELEGATES COMMITTEE	Philip C. Olson, Chairman, WAYS AND MEANS COMMITTEE
J. M. Arburua	J. Bradley Crundwell
J. W. Harrison	W. D. Ommert
Robert J. Schroeder	H. I. Ott
A. Mack Scott	Lawrence M. Proctor
Richard A. Stiern	Irving M. Roberts
Fred B. Walker, Jr.	

### CONSTITUTION

The Constitution of the California Veterinary Medical Association shall be amended as follows:

#### ARTICLE I

##### Name

This Association shall be incorporated and known as the California Veterinary Medical Association and shall remain a non-profit organization in fact, hereinafter referred to as "the Association."

#### ARTICLE II

##### Objectives

The objectives of the Association shall be the advancement of the science and art of veterinary medicine, the conservation and protection of animal health, including the relationship to public health, and betterment of the veterinary profession which, by frequent scientific meetings, may give opportunity for the interchange of knowledge. It shall cooperate with organizations of like purposes wherever located and the American Veterinary Medical Association in the accomplishment of these purposes.

#### ARTICLE III

##### Officers and Election

The elective officers of the Association, the delegates and alternates to the House of Representatives of the American Veterinary Medical Association, the Executive Committee and their authorized number, duties and qualifications shall be set forth in the By-laws of the Association.

#### ARTICLE IV

##### House of Delegates

Section 1. There shall be a legislative body known as the House of Delegates of the California Veterinary Medical Association, which shall be composed of delegates from officially designated constituent associations, together with delegates of such other groups of veterinarians which the Executive Committee with the approval of the House of Delegates shall deem entitled to representation. The number, selection and tenure, voting power, duties and authority of the members of the House of Delegates shall be described in the Administrative Bylaws. The officers and past presidents shall be ex-officio members of the House, without a right to vote, provided, however, that the presiding officer shall have the right to cast one vote in event the vote of the House shall result in a tie.

Section 2. The House of Delegates shall conduct all business of the Association except that otherwise provided for by the Constitution and Administrative By-Laws.

Section 3. The House of Delegates is, in principle, the voice of the active members. It shall approve or disapprove all matters presented to it by the Executive Committee. Its vote, carried out in accordance with customary parliamentary procedure, shall be final. Matters originating in the House, or presented to it by authorized committees, or by any of the regular sections of the Association, shall be submitted to the Executive Committee for consideration, and returned to the House for final action.

#### ARTICLE V

##### Constituent Associations

Section 1. A constituent association shall be any regularly organized Veterinary Medical Association or group officially designated by the Executive Committee and the House of Delegates. Upon adoption of these articles the following associations and groups shall be designated as constituent associations:

Alameda-Contra Costa	Central California
Humboldt	Kern County
Mid Coast	Monterey Bay
N. San Joaquin	Northern California
Orange Belt	Peninsula

Redwood Empire  
San Diego  
Santa Barbara  
Santa Clara

Tulare  
Sacramento Valley  
San Francisco  
Southern California  
State Department of Agriculture Veterinarians  
University of California, School of Veterinary  
Medicine

Section 2. Any Veterinary Association or group that may hereafter become organized within the State of California shall be recognized upon application as a constituent association provided such application is approved by a majority vote of the Executive Committee and the House of Delegates.

#### ARTICLE VI Amendments

The House of Delegates may amend this Constitution at any of its annual meetings by a two-thirds majority of the votes cast by the delegates registered and voting at the meeting, provided that the amendment or amendments shall have been:

a. Presented to the Executive Committee in writing, and introduced at the preceding meeting of the House of Delegates.

b. Published in the official journal of the Association, or in absence of such a publication, shall be mailed to each member of the association, not less than sixty (60) days prior to the annual meeting of the House of Delegates at which final action is to be taken.

### BY-LAWS

#### ARTICLE I

Section 1. *Types of Membership.* A—Voting: 1. Active; 2. Graduate; 3. Retired; 4. Life. B—Non-voting: 1. Honorary; 2. Non-resident.

Membership in the Communist Party or any other organization which advocates the overthrow of the government by force and violence is incompatible with any type of membership in the Association.

Section 2. *Qualifications for Active Membership.* (a) Any person who holds the degree of Doctor of Veterinary Medicine or an equivalent degree of veterinary medicine from a school accredited by the American Veterinary Medical Association, or is licensed to practice veterinary medicine by the State of California, and whose ethical, moral, and professional qualifications comply with this Constitution and By-laws is eligible to apply for election to active membership in the Association.

(b) An active member shall have the right to vote on all propositions submitted to the membership at large, the right to vote upon the election of officers, and the privilege of attending all meetings of the Association and shall be eligible for any office or honor within the scope of the Association.

Section 3. *Qualifications for Graduate Membership.* (a) Qualifications for Graduate Membership shall be the same as for Active Membership except that they shall be graduates who join the Association within one year of graduation.

(b) Graduate Membership is automatically converted to Active Membership at the termination of one year following graduation.

(c) A graduate member shall have the right to vote on all propositions submitted to the membership at large, the right to vote upon the election of officers, and the privilege of attending all meetings of the Association.

Section 4. *Qualifications for Retired Membership.* (a) Any person who has been an active member of the Association for at least fifteen (15) years and who has retired from the active practice of veterinary medicine, may, upon his written application to the Executive Committee, be elected to retired membership by that body subject to approval of the House of Delegates at its next regular meeting.

(b) A retired member shall have the right to vote on all propositions submitted to the membership at large, the right to vote upon the election of officers, and the privilege of attending all meetings of the Association, and shall be eligible for any office or honor within the scope of the Association.

Section 5. *Qualifications for Life Membership.* (a) The qualifications for life membership shall be the same as those for active membership except that life members shall be those who have been exempted from payment of dues by vote of the Association.

(b) Proposals for life membership must be referred in writing to the Executive Committee for recommendation. If the recommendation of such committee is favorable, then the candidate so pro-

posed can only be so elected by a vote of the House of Delegates at the next regular meeting.

(c) A life member shall have the right to vote on all propositions submitted to the membership at large, the right to vote upon the election of officers and the privilege of attending all meetings of the Association and shall be eligible for any office or honor within the scope of the Association, and shall be exempt from payment of dues.

Section 6. *Qualifications for Honorary Membership.* (a) Any person who meets the requirements for honorary membership in the American Veterinary Medical Association may be proposed for Honorary Membership, provided that such proposal shall be made in writing, signed by at least five (5) active members, and referred to the Executive Committee for consideration and recommendation. A two-thirds vote of a quorum present at a regular meeting of the House of Delegates shall be necessary for election to Honorary Membership.

(b) Honorary members shall be exempt from the payment of all dues and assessments.

(c) Honorary members shall not have the right to vote or hold office, or any right or title to any property of the Association. They shall have the privilege of attending any meeting of the Association open to voting members.

Section 7. *Qualifications for Non-Resident Membership.* (a) Any person who holds the degree of Doctor of Veterinary Medicine or an equivalent degree of veterinary medicine from a school accredited by the American Veterinary Medical Association and whose residence or practice is carried on entirely without the territorial limits of the State of California, and whose ethical, moral, and professional qualifications comply with this Constitution and By-laws is eligible to apply to the Executive Committee for election to Non-Resident Membership in the Association.

(b) Non-resident members shall not have the right to vote or hold office, or any right or title to any property of the Association. They shall have the privilege of attending any meeting of the Association open to voting members.

Section 8. *Procedure for Admission to Active Membership.* (a) Application for admission to active membership must be made on a form prescribed by the Executive Committee and shall be signed by the applicant and endorsed by two (2) voting members of the Association. The applicant's signature on such application form shall constitute his acceptance of and intention to be bound by the Articles of Incorporation, Constitution and By-laws of the Association, and the Principles of Veterinary Ethics of the American Veterinary Medical Association, together with all future amendments of any such Articles, Constitution, By-laws or Principles of Veterinary Ethics which may be duly adopted pursuant to the provisions thereof.

(b) Such application form shall be filed with the Executive Secretary, accompanied by such dues as shall be prescribed by the By-laws of the Association.

(c) It shall be the duty of the Executive Secretary to publish the names of such applicants in the California Veterinarian or, in the absence of it, he shall send a letter to each member of the Executive Committee setting forth the names of the applicants for membership for their consideration and report at the next regular meeting of the Association. If no written objection is received by the Executive Secretary within thirty (30) days after notification as provided above, the applicant shall automatically become a member of the Association. If a written objection to any applicant is received by the Executive Secretary, the application shall then be referred to the Executive Committee for consideration and recommendation to the House of Delegates at the next regular meeting. The applicant shall become a member if two-thirds of the voting members present at a regular meeting of the House of Delegates vote by ballot in favor of accepting said applicant.

(d) If an application be rejected by vote of the House of Delegates, all dues submitted with the application shall be refunded to the applicant by the Executive Secretary, together with a statement that such action is by direction of vote of the Association meeting in regular session.

(e) Active membership shall endure for life from the time of election unless terminated as hereinafter provided.

Section 9. *Standard of Qualifications.* The Association, acting through the Executive Committee, shall be the sole judge of the moral, ethical and professional qualifications requisite for admission to, or

continuation of, any kind of membership in the Association.

Section 10. *Members in Active Service.* Every member of the Association who is called to active service within the armed forces of the United States may, during the period of such active service, upon written application to and approval by the Executive Committee, be retained on the membership roster of the Association without the payment of dues.

Section 11. *Termination of Membership.* (a) Any member in good standing may resign by filing with the Executive Secretary his written resignation, providing all his indebtedness to the Association has been paid. Dues paid in advance for the remainder of the current year shall be considered the property of the Association, and no refund need be made. Such written resignation must be ratified by the Executive Committee and such ratification shall be presented by the Executive Committee to the House of Delegates at the next regular meeting of the House of Delegates.

(b) Membership shall cease automatically if membership dues, or any part thereof, remain unpaid after the expiration of the time for payment thereof prescribed pursuant to or by the By-laws. The names of such members dropped from membership shall be referred by the Executive Secretary to the Committee on Membership and AVMA Affairs for investigation and possible reinstatement.

(c) Any member whose license to practice veterinary medicine and surgery in the State of California is revoked, shall, upon receipt of written evidence by the Executive Secretary from the State Board of Veterinary Examiners that such revocation has become final, thereupon automatically ceases to be a member.

(d) Any member whose license to practice has been suspended or who has been duly adjudged guilty by the Executive Committee of misconduct as a veterinarian, or of any act in violation of any of the provisions of the Articles of Incorporation, Constitution or By-laws of the Association, or the principles of veterinary ethics promulgated by the Association or the AVMA, shall be subject to admonishment, censure, suspension, or expulsion from the Association as directed by the Executive Committee.

(e) The procedure with respect to disciplinary action such as admonishment, censure, suspension or expulsion of any member shall be that provided in the Constitution and By-laws of the AVMA. All present provisions of the Constitution and By-laws of the AVMA, and all amendments hereafter made thereto relating to disciplinary procedure are hereby adopted and made a part of this Constitution as though herein set forth in full. The Executive Committee shall be considered as constituting a "Board of Directors" as named in the various sections on disciplinary procedure of the AVMA.

Section 12. *Memberships and Rights Thereof Not Transferable.* Neither membership in the Association, nor any certificate evidencing the same, nor the interest of any member in the Association, or any of the assets thereof, shall (a) be subject to execution, or become or be an asset of the estate of any deceased member, or of any member who may become insolvent or bankrupt; (b) descend to, or vest in the heirs, legatees or devisees of any member; or (c) be transferable or assignable in any form, either by the voluntary act of any member, or by operation of law. In the event of death, insolvency or bankruptcy of any member or of any such attempted transfer or assignment of membership or of any interest of any member in the Association or any of the assets thereof, whether by the voluntary act of the member or otherwise, such membership and all interest of any such member in the Association and all assets thereof, shall automatically be cancelled, revoked and terminated.

## ARTICLE II

### Meetings

Section 1. The annual meeting shall be held between June 1 and December 31 of any calendar year, at such time and place as decided upon by the Executive Committee, or by vote of the House of Delegates, such selection to be made at least one year in advance. Other regular meetings of the Association may be held at such time and places as may be decided upon by the Executive Committee, or by vote of the House of Delegates.

Section 2. (a) Special meetings shall be called by the President upon written request of seventy-five (75) voting members in good standing specifying the particular object of such meeting.

(b) The President, if he deems it necessary, may call special meetings. All members in good standing shall be given not less than fifteen (15) days written notice of all special meetings, which notice shall specify the particular object of such meeting.

## ARTICLE III

### House of Delegates

Section 1. Each of the constituent associations granted representation in accordance with Article V, Section 1, of the Constitution, shall be represented by delegates and alternate delegates as follows:

100 members or less	1 delegate; 1 alternate
101-200 members	2 delegates; 2 alternates
201-300 members	3 delegates; 3 alternates
301-400 members	4 delegates; 4 alternates
401-500 members	5 delegates; 5 alternates

Should constituent associations become larger, they shall be represented at the ratio of one delegate and one alternate for each 100 members.

Section 2. *Selection and Tenure.* (a) Delegates and alternate delegates representing constituent associations shall be elected or appointed for terms of two (2) years; except that the first year approximately half of the associations shall elect for a one (1) year term to provide better continuity of service to the House.

(b) The following constituents shall elect or appoint for a one year term the first year only:

Alameda-Contra Costa	Redwood Empire
Humboldt	San Diego
Mid Coast	Santa Barbara
N. San Joaquin	Santa Clara
Orange Belt	Tulare

(c) The following constituents shall elect or appoint for a two year term:

Central California	Peninsula
Kern County	Sacramento Valley
Monterey Bay	San Francisco
Northern California	Southern California
State Department of Agriculture Veterinarians	
University of California, School of Veterinary Medicine	

(d) All delegates and alternates must be members in good standing of the California Veterinary Medical Association.

Section 3. *Certification.* (a) The number of active members in each constituent association shall be determined on the current basis from the records of the California Veterinary Medical Association and shall be certified by the Executive Secretary sixty (60) days before the annual meeting of the House of Delegates. Association members are limited to affiliate with only one constituent association for purposes of representation.

(b) The Secretary of each constituent association shall certify the names and addresses of its delegates and alternates, and the voting power of each, to the Executive Secretary at least thirty days before each meeting of the House of Delegates.

Section 4. *Voting Power.* (a) Each delegate representing a constituent association shall have the vote determined as follows:

25 members or less	1 Vote
26-50 members	2 Votes
51-75 members	3 Votes
76-100 members	4 Votes

(b) No single delegate or alternate shall represent more than 100 members or have more than four (4) votes. Alternate delegates shall vote only in the absence of the delegate for whom he is alternate.

Section 5. *Quorum.* Sixty (60) percent of the voting delegates of the House of Delegates shall constitute a quorum for the transaction of business.

Section 6. *Duties and Authority.* The House shall perform all of the duties and exercise all of the authority belonging to the membership except election of the corporate officers. In principle, the House is the "floor" of the annual meeting.

Section 7. *Meetings.* (a) The Annual Meeting of the House of Delegates shall be held immediately preceding the Annual Session of the California Veterinary Medical Association.

(b) An Interim Meeting shall be held just previous or during any regularly called meeting.

(c) Special Meetings shall be held on petition of a majority of the Constituent Associations filed with the Executive Secretary, stating the place, time of the meeting, and the purposes for which such meet-

ing is called. Such petition must be filed with the Executive Secretary at least thirty (30) days before the date of the meeting specified in the petition. The Executive Secretary shall issue a Special Bulletin to the entire membership not less than fifteen (15) days before the meeting outlining the reason for the special meeting and the proposed business specified in the petition. Only business specified in the petition shall be considered at a special meeting.

(d) All meetings of the House of Delegates shall be open unless a majority of the delegates present and voting determine that the meeting shall be either a closed or executive meeting as hereinafter defined.

(e) Closed meetings may be attended only by members of the California Veterinary Medical Association and members of its staff.

(f) Executive meetings are those which are attended only by delegates, officers, and by such employees of the California Veterinary Medical Association and of the House of Delegates who, in the opinion of the presiding officer, are necessary for the functioning of the house.

(g) Procedure. The following shall be the general order of business at all Meetings of the House of Delegates:

- (1) Call to Order.
- (2) Roll Call.
- (3) Presentation of Minutes.
- (4) Presidential Message.
- (5) Proposals for Life and Special Memberships.
- (6) Report of the Executive Committee.
- (7) Report of the Executive Secretary.
- (8) Report of the Treasurer.
- (9) Report of Committees.
- (10) Unfinished Business.
- (11) New Business.
- (12) Nomination of Officers.

At any meeting, the House, by majority vote, may change the order of business.

Section 8. *Nominations.* Following their winter meeting the voting members of the House of Delegates shall convene as the Nominating Committee. Any member of the California Veterinary Medical Association may be nominated by the delegate from his constituent association provided he has first obtained the approval of such constituent association as per Article XIV, Section 1 (a) of these By-Laws. The Nominating Committee shall elect its own chairman. The Nominating Committee at this meeting shall nominate members for each of the following offices:

President-Elect	Second Vice-President
First Vice-President	Third Vice-President

Delegate and Alternate Delegate to the AVMA as required by Article IX of the AVMA Administrative By-Laws.

#### ARTICLE IV Officers

Section 1. The elective officers of the Association shall be a President, President-Elect, First Vice-President, Second Vice-President, Third Vice-President. The President-Elect shall be installed as President at the termination of the annual meeting next following the one at which he was elected. Each elective officer shall hold office for one year following his installation at the annual meeting, or until his successor has been installed.

Section 2. The elective officers, the Treasurer, and the immediate past president shall constitute the Executive Committee.

Section 3. A delegate and an alternate to the House of Representatives of the American Veterinary Medical Association shall be elected in conformity with the provisions of the Constitution and By-laws of the American Veterinary Medical Association.

Section 4. There shall be an Executive Secretary employed by the Executive Committee. He shall have no voting power in the Executive Committee.

Section 5. The elective officers shall be known as the corporate officials of the Association, and shall be charged with the duty of complying with the United States and California Laws governing corporations.

Section 6. The Treasurer shall be appointed annually by a majority vote of the Executive Committee with the approval of the House of Delegates. The Treasurer may be removed for cause by a majority vote of the Executive Committee.

#### ARTICLE V

##### *Duties of the President*

Section 1. It shall be the duty of the President to preside at all meetings and preserve order and decorum.

Section 2. The President shall appoint a sergeant at arms, committees as authorized in Article XV of the By-laws, and such other committees as may be necessary.

Section 3. The President shall make the necessary appointments to fill any vacancies occurring among the non-elective officers, the Executive Secretary, and the Treasurer. Such appointments must have the approval of the Executive Committee at the next regular meeting of the Association.

Section 4. The President shall be the Chairman of the Executive Committee.

Section 5. The President shall call special meetings of the Executive Committee whenever he may deem it necessary, and shall also call such special meetings upon written request of four (4) members of the Executive Committee.

Section 6. The President shall instruct the Executive Secretary to notify by mail all members of the Executive Committee at least seven (7) days in advance of the time and place for any special meeting of the Executive Committee.

Section 7. The President shall be ex-officio member of all committees.

#### ARTICLE VI

##### *Duties of the President-Elect*

Section 1. It shall be the duty of the President-Elect to perform the duties of the President in case of the latter's absence or inability to serve or conduct the affairs of the Association. He shall otherwise assist the President as the President may from time to time determine or direct.

Section 2. The President-Elect shall act as chairman of the Committee on Ethical and Professional Conduct.

Section 3. The President-Elect shall preside at the meetings of the House of Delegates.

#### ARTICLE VII

##### *Duties of the First Vice-President*

It shall be the duty of the First Vice-President to perform the duties of the President and/or President-Elect in the event of their absence or inability to serve or conduct the affairs of the Association. He shall also be a member of the Public Relations Committee and act as liaison officer between that committee and the Executive Committee.

#### ARTICLE VIII

##### *Duties of the Second Vice-President*

It shall be the duty of the Second Vice-President to perform the duties of the President and/or President-Elect and First Vice-President in their absence or inability to serve. He shall also be chairman of the Committee on Programs.

#### ARTICLE IX

##### *Duties of the Third Vice-President*

It shall be the duty of the Third Vice-President to perform the duties of the President and/or President-Elect, First Vice-President and Second Vice-President in their absence or inability to serve. He shall also be the chairman of the Committee on Membership and American Veterinary Medical Association Affairs.

#### ARTICLE X

##### *Duties of the Treasurer*

Section 1. It shall be the duty of the Treasurer to put all moneys of the Association into a fund to be known as the General Fund, to be legally appropriated for the payment of current expenses and for such other purposes as the Executive Committee may direct.

Section 2. All moneys shall be deposited in the bank in the name of the California Veterinary Medical Association.

Section 3. It shall be the duty of the Treasurer to keep a record of all bonds, other securities and policies of the Association and deposit such bonds, securities and policies in a safety deposit box of the Association.

Section 4. The Treasurer shall sign all checks drawn on the General Fund. Said checks shall also be cosigned by the Executive Secretary or in the event of his inability, by a member of the Executive Committee other than the Treasurer.

Section 5. There shall be a fund designated as the Operating Fund to be disbursed by the Executive Secretary to pay the current running expenses of the Association. This fund shall be drawn from the General Fund. The amount of this fund shall be determined by the Executive Committee from time to time.

Section 6. The Treasurer shall be bonded with a reputable company in the amount of \$10,000.00. The premium of such bond shall be paid by the Association.

Section 7. At each annual meeting of the House of Delegates, or at such other times as may be authorized by the Executive Committee, the Treasurer shall render to the Association a detailed, written report of his receipts and disbursements or, in the event of his absence, submit a statement for presentation.

## ARTICLE XI

### *Duties of the Executive Committee*

Section 1. The Executive Committee shall meet within seven (7) days immediately prior to all meetings of the Association, and shall hold such other meetings as may be necessary for the proper conduct of the business of the Association. It shall be the duty of each Committee member to be present at such meetings.

Section 2. Five (5) members of the Executive Committee shall constitute a quorum for the transaction of business.

Section 3. The Executive Committee shall, in keeping with Article II, Section I of these By-laws, select a date and place for the annual meeting of the Association providing the date and place have not been selected by the House of Delegates in regular meeting.

Section 4. The Executive Committee shall investigate objections to the acceptance of membership applications in accordance with Article I, Section 8 (c) of these By-Laws and make Recommendations to the House of Delegates.

Section 5. The Executive Committee shall receive from the Executive Secretary, at the annual meeting, a proposed budget covering all anticipated expenditures of the Association for the following fiscal year. It shall be the duty of the Executive Committee to study, make such changes as are deemed necessary and submit such budget to the House of Delegates for approval.

Section 6. (a) The Executive Committee shall function relative to any charges or complaints filed against any member of the Association.

(b) No public report of any such hearing(s) shall be divulged in any manner, direct, or indirect, by any member of the Executive Committee, previous to its report or recommendations to the House of Delegates in regular session.

(c) If the Executive Committee recommends expulsion of any member from the Association, then the membership of any defendant shall be declared void if two-thirds of the members present at a regular session of the House of Delegates vote for such member's expulsion from the Association. Such vote shall be by ballot only.

Section 7. The Executive Committee shall provide for proper headquarters for the Association.

Section 8. (a) The Executive Committee shall be vested with the authority to select, enter into contract, and employ the Executive Secretary.

(b) The Executive Committee shall not enter into contract with an Executive Secretary for a period exceeding one year.

(c) The Executive Committee shall be vested with the authority to discharge the Executive Secretary for cause.

(d) The Executive Committee shall establish the salary and expenses of the Executive Secretary.

(e) The Executive Committee shall dictate the policies and duties of the Executive Secretary, except as otherwise provided in Article XII of the By-laws.

(f) The Executive Committee may, at its discretion, elect an Executive Secretary pro tem from the Executive Committee membership who shall perform the duties of the Executive Secretary in the event of the absence or inability of the Executive Secretary to conduct the affairs of his office in the Association.

Section 9. The Executive Committee shall have complete charge of the property and all financial

affairs of the Association, including the management of all its publications.

Section 10. The Executive Committee shall have the accounts of all officers and employees in charge of Association funds and/or property of the Association, audited by a qualified accountant prior to the annual meeting or at such other times as it shall direct. The audit report shall be submitted to the House of Delegates at a regular meeting, after due consideration by the Executive Committee.

Section 11. The Executive Committee may, at its discretion, elect an Assistant Treasurer from the Executive Committee membership who shall perform the duties of the Treasurer in the event of the absence or inability of the Treasurer to conduct the affairs of his office in the Association.

Section 12. The Executive Committee shall report all of its actions deemed pertinent to the welfare of the Association, at the annual meeting of the House of Delegates.

## ARTICLE XII

### *Duties of the Executive Secretary*

Section 1. The duties of the Executive Secretary shall be such as are delegated by the Executive Committee of the Association, in regular meeting, and shall be such duties as are normally executed by such an office, or as specifically provided for by the various provisions of this Article.

Section 2. The Executive Secretary shall attend all meetings of the Association and the Executive Committee and shall keep and present all minutes of their respective proceedings.

Section 3. The Executive Secretary shall be custodian of all records, books, papers, and other properties of the Association except those delegated to the Treasurer. All bonds and other securities and policies shall be deposited in the safety deposit box of the Association.

Section 4. The Executive Secretary shall submit a budget for approval to the Executive Committee at their stated meeting, prior to the annual meeting.

(a) The budget shall be for the following fiscal year.

(b) Fiscal year shall be from July 1 through June 30.

(c) The budget shall contain all items necessary for the financial conduct of the Association for the ensuing fiscal year.

Section 5. The Executive Secretary shall, with the approval of the Executive Committee, arrange for necessary accommodations for holding all meetings of the Association.

Section 6. The Executive Secretary shall provide for the registration of all members and visitors at all meetings.

Section 7. The Executive Secretary shall receive all funds paid to the Association, promptly transfer such funds to the Treasurer of the Association, and receive from the Treasurer a receipt therefor. The Executive Secretary shall retain a sum provided by the Executive Committee as an operating fund.

Section 8. The Executive Secretary shall review and countersign all contracts, agreements, transfers, or other instruments to which the Association is a party, when so authorized by the Association or the Executive Committee when not in conflict with the Corporate laws of the State of California.

Section 9. The Executive Secretary shall carefully examine, approve or reject, by direction of the Executive Committee, all material intended as advertising, or otherwise, in any publication or bulletin of the Association. He shall, with the Executive Committee's approval, execute written contracts relating to advertising in a form authorized by the Executive Committee.

Section 10. The Executive Secretary shall employ, and/or dispense with, such assistance as may be ordered by the Executive Committee. The Executive Committee shall outline the scope and duties of such special employees.

Section 11. The Executive Secretary shall give bond in such sum as may be fixed by the Executive Committee. The premium on such bond shall be paid by the Association.

Section 12. The Executive Secretary shall, at annual meetings, or as otherwise requested by the Executive Committee, render a report of his activities and the state of the Association funds in his hands. Such report shall be submitted to the Executive Committee for examination prior to a regular meeting of the House of Delegates.

Section 13. The Executive Secretary shall mail the proposed agenda of the House of Delegates to the members of the House and to the Executive Committee not less than 10 days prior to the meeting for which the agenda is intended.

Section 14. The Executive Secretary shall attend all meetings of the House of Delegates and shall keep and present all minutes of its proceedings.

#### ARTICLE XIII

##### Duties of Sergeant-at-Arms

The Sergeant-at-Arms shall admit to the meetings of the association only those persons authorized by these By-Laws or as otherwise directed by the Executive Committee or the House of Delegates.

#### ARTICLE XIV

##### Elections

Section 1. *Nominations.* Nominations of elective officers shall take place at the winter meeting of the House of Delegates.

(a) Nominees shall have the endorsement of their constituent associations.

(b) Nominees who have endorsement of their constituent association shall have such endorsement filed in writing in the Executive Secretary's office not less than seven (7) days prior to the regular meeting at which nominations for officers are made. Such endorsed nominations must be posted by the Executive Secretary on the bulletin board at the opening of registration for regular meeting.

(c) Nominees shall have been members of the California Veterinary Medical Association for not less than five (5) years prior to nomination.

(d) The retiring President shall not accept nomination for the office of President-Elect.

Section 2. *Ballots.* The official ballot used for election of officers shall be prepared by the Executive Secretary.

The official ballot also shall consist of two (2) official envelopes with instructions.

Section 3. *Procedure of Voting.* (a) The Executive Secretary shall mail the official ballot to each quali-

fied voter in good standing within thirty (30) days following nominations.

(b) The official poll shall close at midnight sixty (60) days following the day of nominations. Ballots received after this time shall not be counted.

(c) The official polling place shall be the office of the Executive Secretary.

(d) A voting member's name must appear on the official outside envelope which shall contain his ballot sealed in the official inside envelope. The official outside envelope shall remain sealed until the voter's name has been checked off the list of qualified voters by the Official Tellers, and when opened the sealed and official inside envelope containing the ballot shall remain sealed and so be deposited in the official ballot box. The sealed inside envelope containing the ballot shall not be opened or the ballots counted until after the official closing of the polls.

If a member voting writes his name or makes any other marks or symbols by which he could be identified, either upon the official inside envelope or upon the ballot therein contained, that ballot shall not be counted.

Section 4. *Counting of Ballots.* (a) The President shall appoint five (5) official tellers whose duties it shall be to determine the eligibility of, and tally the ballots.

(b) The Tellers shall check each name voting against the list of qualified voters prepared by the Executive Secretary. A suitable ballot box shall be provided by the secretary, in which all sealed envelopes containing the ballots shall be deposited and the same shall not be opened before the closing of the polls. Following closing, the Tellers, within ten (10) days, shall officially count the vote and make out correct tally sheets which shall state the number of votes received by each candidate. Each Teller shall duly certify the ballots and the tally sheets and inform the Executive Secretary and the President of the result.

The candidate for each office receiving the greatest number of votes shall be declared elected. In case of a tie vote between two or more candidates for an office, election shall be determined by lot between such candidates.

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antibiotic with  
specific  
udder affinity.



(c) Ballots and tally sheets shall be kept on file for one (1) year from the date of tally in the office of the Executive Secretary. Such ballots and tally sheets shall be open to inspection by any qualified voting member.

(d) Election results shall be published in the *California Veterinarian* prior to the annual meeting.

Section 5. Installation of officers shall take place at the annual meeting of the Association.

#### ARTICLE XV

##### Funds and Assessments

Section 1. *Annual Assessment of Dues.* (a) The dues for all active members shall be thirty dollars (\$30.00) per annum.

(b) The dues for all graduate, non-resident and retired members shall be seven dollars and fifty cents (\$7.50) per annum.

(c) Life and honorary members shall be exempt from the payment of all dues.

Section 2. *Payment of Dues.* (a) Annual dues shall be due and payable on January 1 of the year for which they are levied.

If desired, dues may be paid semi-annually.

(b) A member shall lose his membership if the first one-half of the dues remains unpaid after April 1 of any year. Membership shall also be terminated if the remaining dues, payable July 1, remains unpaid after October 1 of any year.

(c) New members shall pay only for the portion of the fiscal year after election to membership. Said portion shall be determined on a quarterly basis. A fraction of a quarter shall be counted as a full quarter.

(d) A member losing membership because of non-payment of dues may apply for reinstatement at any time, and the executive committee may, in its discretion, reinstate such member.

Section 3. *Special Assessments.* The Executive Committee with the approval of the House of Delegates, or the House of Delegates, at a regular meeting or a special meeting called for that purpose, may initiate action to assess the members for funds, over and above any dues paid, for special needs and purposes. Such assessments shall be approved by the

affirmative mail vote of a two-thirds majority of the voting members of the association who vote, provided that at least fifty (50) percent of the total voting membership exercise their right to vote.

Section 4. *Reserve Fund.* (a) There shall be a fund, known as the reserve fund, in the amount of at least ten (10) percent of the current annual operating budget. The reserve fund shall be used only for purposes and in such amounts as shall have been authorized previously by the Executive Committee and approved by the House of Delegates.

(b) This fund shall be audited annually prior to the annual meeting.

Section 5. *Limit of Authority.* No elective officer, the Executive Secretary or the Executive Committee of the Association shall incur any indebtedness or obligation in behalf of the California Veterinary Medical Association for any amount in excess of the funds in custody of the Treasurer.

#### ARTICLE XVI

##### Committees

Section 1. In addition to the Executive Committee there shall be six (6) standing committees of the Association, as follows:

(a) Committee on Programs.

(b) Committee on Public and Professional Relations.

(c) Committee on Membership and AVMA Affairs.

(d) Committee on Legislation.

(e) Committee on Ways and Means.

(f) Committee on Ethics and Professional Conduct.

Section 2. *Additional Committees.* (a) Additional committees may be created or existing committees may be discontinued by action of the Executive Committee subject to the approval of the House of Delegates at a regular meeting.

(b) Additional special committees may be created by the House of Delegates to perform specific functions not covered by other committees.

(c) There shall be at least one member of the House of Delegates on all standing and special committees, except the Executive Committee.

(d) Each committee shall file a written report with the Executive Secretary at least thirty (30)

Now available in disposable syringes for treatment of mastitis is Havlomycin, the "guided missile" antibiotic.

When tested by veterinarians on two large commercial dairy herds, there were no clinical cases which did not respond to Havlomycin-4. And cows returned to milking line faster than control animals treated with standard penicillin-streptomycin-sulfa infusion.

Each 12 cc. disposable syringe contains 100,000 units ester of penicillin (Havlomycin), 100 mg. dihydrostreptomycin, 100 mg. neomycin, and 2000 units bacitracin in special diffusing base.

Havlomycin-4 is packaged in display cartons of twelve single dose, disposable syringes, \$7.50.

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## Now Havlomycin Injectable for Mastitis, Shipping Fever, Calf Scour Complex, Pneumonia!

Havlomycin injectable is an antibiotic with proven affinity for lung and udder tissue.

When injected intramuscularly, tissue concentrations of four to five times normal (procaine penicillin G) are found in lungs and udder.

Havlomycin injectable has proved effective against shipping fever, calf scours pneumonia complex, pneumonia, pleuritis and in chronic mastitis.

Packaged in 10 cc. vials with diluent, (10 cc. \$2.15; 25-10 cc. \$48.25). Haver-Lockhart, Kansas City.

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days before the next scheduled meeting. These reports shall be reproduced and a copy furnished each delegate at least seven (7) days before the next scheduled meeting of the House of Delegates. A member of a committee may file a minority report, providing he has advised the other committee members of his intentions.

Section 3. Each standing committee shall have the right to appoint advisory committees, which shall function in an advisory capacity only.

Section 4. The President shall appoint the members and designate the chairman of the various standing committees subject to the approval of the Executive Committee, with the exception of:

(a) Committee on Programs, of which the Second Vice-President shall be the chairman.

(b) Committee on Membership and AVMA Affairs, of which the Third Vice-President shall be chairman.

Section 5. *Membership of Standing Committees.*

(a) *Committee on Programs.* This Committee shall be composed of five (5) members. The Second Vice-President shall be Chairman. The remaining four members shall be appointed by the President.

(b) *Committee on Public and Professional Relations.* This Committee shall include the First Vice-President and the Executive Secretary who shall serve as secretary. The President shall appoint the Chairman and regulate the size of the Committee.

(c) *Committee on Membership and American Veterinary Medical Association Affairs.* This Committee shall be composed of the Third Vice-President, who shall be Chairman, and the secretaries of the constituent associations.

(d) *Committee on Legislation.* This Committee shall be composed of six members. Each member shall serve for a term of three years. Two members shall be appointed by the President each year to obtain continuity.

(e) *Committee on Ways and Means.* This Committee shall be composed of six members, and each member shall serve for a term of three years. Two members shall be appointed by the President each year to obtain continuity.

(f) *Committee on Ethical and Professional Conduct.* This Committee shall be composed of the President-Elect who shall be the Chairman and three other members. Each member shall serve for a term of three years. One member shall be appointed by the President each year to obtain continuity.

Section 6. *Duties of Standing Committees.* (a) It shall be the duty of the Committee on Programs to arrange for the presentation of papers, lectures, and demonstrations at all meetings. It shall also be the duty of this committee to cooperate with other agencies in arranging programs for all veterinary conferences pertaining to the Association.

(b) It shall be the duty of the Committee on Public and Professional Relations to study the relation of the veterinary profession to agriculture and other branches of science and industry, and to carry out educational programs beneficial to the general welfare of mankind, through the medium of scientific and public press, civic clubs, professional groups, motion pictures, radio and television.

(c) It shall be the duty of the Committee on Membership and American Veterinary Medical Association Affairs to harmoniously work with the American Veterinary Medical Association, and to report on all matters of interest to the Association; to work with the Executive Secretary and assist him in obtaining new members and reinstatement of delinquent members; to assist the sergeant-at-arms in the fulfillment of his duty.

(d) It shall be the duty of the Committee on Legislation to propose and campaign vigorously for, such new legislation as the committee directs and to defend the practice act when changes which are deemed potentially detrimental to the veterinary profession and/or livestock owners are proposed from outside sources.

(e) It shall be the duty of the Committee on Ways and Means to recommend proposed amendments to the Constitution, ways and methods of raising funds, and making any changes deemed beneficial to the Association.

(f) The duties of the Committee on Ethical and Professional Conduct shall be the same as outlined in the Administrative By-laws of the AVMA with the exception that formal charges levied against repeated offenders shall be referred to the Executive Committee.

## ARTICLE XVII Miscellaneous

Section 1. *Amendments.* These By-Laws may be amended by the House of Delegates at any of its annual meetings by a two-thirds majority of the votes cast by the delegates registered and voting at the meeting, provided, that the amendment or amendments shall have been:

(a) Presented to the Executive Committee in writing, and introduced at the next meeting of the House of Delegates.

(b) Published in the official journal of the Association or in absence of such a publication, shall be mailed to each member of the Association, not less than sixty (60) days prior to the annual meeting of the House of Delegates at which final action is to be taken.

Section 2. *Code of Ethics.* The code of ethics of the Association shall be the same as that adopted by the American Veterinary Medical Association.

Section 3. *Rules of Order.* The current edition of *Robert Rules of Order* (when not in conflict with the Articles of Incorporation, Constitution and By-laws of the Association) shall be the guide for parliamentary procedure at all meetings of the Association and any other committees or groups within the Association.

Section 4. *Official Publication.* The *California Veterinarian* shall be the official publication of the Association.

## Prevalent Mastitis

(Continued from page 33)

strains of *M. pyogenes* (staphylococci) which were tested in 1955-1956.

Again a direct comparison of these data with those in Table II should be made with care. The samples were of similar origin having been practitioner submitted from California herds. However, between the time of these tests and those indicated in Table II, the concentration of the commercial testing discs used was changed. Those results quoted in Table III were accomplished in part with discs of moderately higher labeled potency than have subsequently been used. Thus, the probability that the major difference between the two sets of data is due to increased drug resistance deserves careful consideration.

## Discussion

In the process of such a testing program certain short cuts have evolved. We rarely sensitivity test *Strep. agalactiae*, as we have never encountered a penicillin resistant strain, nor have we seen a report of such a strain.

The majority of our testing is applied to micrococci, where we find the greatest herd variation in drug susceptibility, and to *Pseudomonas aeruginosa*, where we find the greatest per cent of drug resistance. The remainder of the sensitivity testing centers around the more exotic species of mammary pathogens such as *Nocardia asteroides*, *C. pyogenes*, etc.

The primary infectious problem in the udders of California dairy cattle continues to be *Micrococcus pyogenes*. The propensity of this organism to cause infection of both acute and chronic nature and to develop drug resistant strains forces the practitioner to use greater care in drug selection. Drug sensitivity testing, while not infallible, can shed much light on the needs for specific therapy in individual herds.

## *Group Workmen's Compensation Insurance*

California Compensation &  
Fire Company

### AVAILABILITY

Members may place their policies with Cal Comp through their own insurance brokers.

### ELIGIBILITY

Membership in the California Veterinary Medical Association.

### DIVIDEND RETURN

Dividend returns earned by the group will be determined nine months after expiration of the group policy, in accordance with the ruling of the Insurance Commissioner.

#### *Note:*

Dividends may not be guaranteed in advance by any insurance carrier in California, and must be paid from earned surplus.

## *Atkinson, Clayton and Atkinson*

INSURANCE BROKERS AND AGENTS

2881 El Camino Real • EMerson 9-2559 • Redwood City, California

## CALIFORNIA VETERINARY MEDICAL ASSN.

### Are You Protected This Way?

#### COVERAGES

##### **Bodily Injury Liability**

\$25,000.00 each person.  
\$50,000.00 each occurrence.

##### **Property Damage—Liability (Automobile)**

As per vet. liability-aggregate products.  
\$5,000.00 each occurrence.

##### **Property Damage—Liability (Except Automobile)**

\$5,000.00 each occurrence.  
\$25,000.00 aggregate operations.  
\$25,000.00 aggregate protective.  
As per vet. liability-aggregate products.

##### **Medical Payments (Automobile)**

\$25,000.00 aggregate contractual.

### Veterinarian's Malpractice Liability

#### **1. On and Off Premises Liability, Injury of Person, Destruction of Property.**

A. Breach of implied contract, restraint, assault, slander, libel, malicious prosecution, replevin of property.

#### **2. Malpractice Liability.**

A. Professional services rendered, mistake, error, etc.

#### **3. Animals in Care, Custody and Control of Doctor and Em- ployees.**

A. Loss, theft, escape, self injury, burglary, robbery, etc.

#### **4. Products Liability.**

A. Goods or products, sold, handled, or distributed by insured.

#### **5. Contracted Liability.**

A. Lease agreement, etc.

B. Loss to dog by fire, maximum \$1,000 per dog, \$25,000 aggregate.\*

#### **6. Auto Non-Ownership Liability.**

A. Protects insured if employees use own car for business purposes.  
B. Automobile-hired, etc.

#### **7. Comprehensive Personal Liability.**

A. Cover the insured for his personal act, and that of his family, services of part-time domestic employees, etc.

#### **8. COST FOR THE ABOVE \$94.85 PER YEAR.**

#### **9. Owned Automobile at a Devi- ated Rate.**

\*Subject to Audit.

**D. W. MORRIS**

4041 Marlon Ave.  
Rm. 256, Los Angeles, Calif.  
Phone: AX. 3-7169

•  
or write to  
•

**CHARLES S. TRAVERS**

Executive Secretary  
CVMA  
3004 16th St., S. F. 3

## CALIFORNIA VETERINARY MEDICAL ASSOCIATION **Veterinarians:**

Do You Have a Comprehensive Liability Policy?

**MALPRACTICE  
INSURANCE**



**PREMISES and  
BUSINESS  
LIABILITY  
Coverage**



**Insurance on  
Animals in  
Care and  
Custody**



**PRODUCTS  
LIABILITY  
Coverage**



**SPECIAL PREMIUM 1 Year Standard Limits**

**E. C. SMITH COMPANY**  
1404 Franklin St., Oakland  
Templebar 6-4546

**\$60<sup>00</sup>**  
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**CHARLES S. TRAVERS**  
Exec. Sec'y—CVMA, 3004 16th St.  
San Francisco

# FOR SALE

Ten year oil and gas leases issued by the State of New Mexico on State owned lands in areas where new wells are now drilling. Price \$7.50 per acre in multiples of 40 acres or more.

*Offering Circular on Request*

## PETROLEUM LEASE CORPORATION

1346 Connecticut Avenue, N.W.  
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# To the California Veterinarians

## Your Expanded Group Disability Program

### Take Advantage of This Low-Cost Plan NOW

(Approved and Recommended by CVMA Executive Committee)

Includes CVMA Group Disability and Hospital-Surgical Expense Plan (World-Wide Coverage)

#### MONTHLY ACCIDENT

INDEMNITY . . . . . \$300<sup>00</sup>

(TOTAL DISABILITY)

#### MONTHLY ACCIDENT

INDEMNITY . . . . . \$150<sup>00</sup>

(PARTIAL DISABILITY)

#### MONTHLY SICKNESS

INDEMNITY . . . . . \$300<sup>00</sup>

(TOTAL DISABILITY)

#### ACCIDENTAL DEATH

INDEMNITY . . . . . \$1,000<sup>00</sup>

Indemnity for Dismemberment and Loss of Sight by Accident

For Loss of Both Hands, or Both Feet, or One Hand and One Foot, or Entire Sight of Both Eyes \$10,000<sup>00</sup>

For LOSS of One Hand or One Foot, or Entire Sight of One Eye \$5,000<sup>00</sup>

For LOSS of Thumb and Index Finger of Either Hand . . . . \$2,500<sup>00</sup>

Special Hospital-Surgical Benefits for Member and All Dependents—Including \$5,000 Blanket Polio Coverage

Hospital-Residence Expense (maximum 70 days any one disability) . . . . . Per Day \$ 14.00

Miscellaneous Hospital Expense (drugs, anaesthetic, X-ray, etc.) . . . . . \$200.00

Surgical Operation Expense (based on schedule of operations) . . . . . \$10.00 to \$300.00

## LOW COST GROUP RATES

### Semi-Annual Rates:

Member Only	To Age 50 Mbr. & One Dep.	Mbr. & All Deps.	Member Only	Ages 50 thru 59 Mbr. & One Dep.	Mbr. & All Deps.	Member Only	Ages 60 thru 64 Mbr. & One Dep.	Mbr. & All Deps.
\$80.80	\$109.55	\$134.90	\$91.50	\$120.25	\$145.60	\$107.50	\$136.25	\$161.60

### Representatives for CVMA Program:

**NORTHERN CALIFORNIA**  
Power & Dalziel  
465 California Street  
San Francisco

**CENTRAL CALIFORNIA**  
H. D. Bartlett  
315 Anglo Bank Bldg.  
Fresno

**SOUTHERN CALIFORNIA**  
Melvin Katleman  
470 So. San Vicente Blvd.  
Los Angeles

CHARLES S. TRAVERS, Executive Secretary  
OF CVMA Office — 3004 16th St., San Francisco 3

**NATIONAL CASUALTY COMPANY • J. L. Toole, Gen. Agt.**  
315 Montgomery Street • EXbrook 2-2440 • San Francisco 4, California

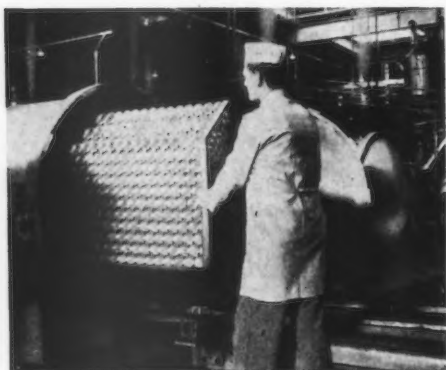
# You Can Safely Recommend CALO PET FOODS



Calo is produced in the most modern pet food plant in the world with automatic equipment that is unique in the industry. And every step of production is so well controlled that Calo Cat Food and Calo Dog Food never vary from their consistent high quality.



Calo's modern electronic system takes the guesswork out of weighing, mixing and cooking with all operations recorded and controlled. Here, an automatic device weighs out the correct amount of each ingredient.



Giant pressure cookers sterilize and steam-cook the filled cans of pet food. The good fresh meats are thus cooked to a natural, golden-brown. No artificial red coloring in Calo!



**CALO DOG FOOD**  
good fresh meats —  
and more!



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because all cats  
need meat!

## Everything for a balanced diet

Good fresh meats—and every essential needed for a complete diet—including Vitamins A, D and E from natural sources—make supplements unnecessary.

# CALO Specialists in Pet Nutrition



**IN MILK FEVER...**

**TO RAISE AND MAINTAIN CALCIUM LEVELS...**

# CALSEM<sup>®</sup> + PARTEROL<sup>®</sup>



Calsem-DM presents a stable solution containing calcium gluconate 20%, dextrose 20%, calcium glycerophosphate 2%, magnesium chloride 2%; in water, with stabilizer and preservative. As replacement therapy, Calsem-DM supplies an effective concentration of calcium until Parterol takes effect.



Parterol is an oil-soluble steroid which raises the blood calcium level following parturition. It acts by mobilizing calcium stored in the bones and by increasing the absorption of calcium from the intestinal tract.

One clinical study of 328 cases of milk fever showed that calcium I.V. and Parterol I.M. were effective in 98% of the patients.<sup>1</sup>

## SUPPLIED:

*Parterol* in 30 cc. multi-dose vials, each cc. containing 2.5 mg. dihydrotachysterol in oil.

*Calsem*, *Calsem-D* and *Calsem-DM* in 500 cc. vials.

1. Harria, J.R., and Clarkson, T.B., Prevention of Relapses in Milk Fever, Vet. Medicine, 12:696 (Dec. 1955)

*Write for detailed literature.*



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**the first practical,  
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for LUNGWORM  
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# Dictycide

CYANACETHYDRAZIDE FOR INJECTION

TRADEMARK

Until the development of Dictycide, there was no specific treatment for lungworm infection. Yet, the condition has been nationwide and its effects extremely costly to raisers of swine, sheep, and cattle. Incidence has been found to reach proportions up to 60% and 70%.

Dictycide, discovered during the screening of more than 3,000 agents, now gives the veterinarian a means of bringing lungworm infection under con-

trol. Exhaustive field tests over the past 18 months on more than 10,000 animals, in 33 states, have proved Dictycide's effectiveness. Injected as recommended, this new Fort Dodge anthelmintic expels the adult lungworms from the air passages of infected animals.

An illustrated brochure on lungworm infection, describing its treatment with Dictycide, is available to veterinarians and students. Please write for a copy.



**FORT DODGE LABORATORIES, INC. FORT DODGE, IOWA**

Dictycide (patent pending) is supplied in a 25 gm. vial, for dilution to 100 cc. Made in U.S.A. by arrangement with Imperial Chemical Industries Limited.

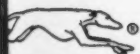
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## new Panplex<sup>\*</sup> and the D.V.M.

Once, there was this D.V.M. (a competent practitioner, but he had his problems). His patients hated him because when antibiotics were indicated, he'd pop four pills down their throats. Also, he had to rent a big office (which he couldn't afford) to store all the pills.

Then, he read an ad on Upjohn's new PANPLEX CAPSULES. It showed how Upjohn had squeezed four potent antibiotics into one economical capsule: *Panmycin*<sup>†</sup> for broad antibacterial action; *Albamycin*<sup>†</sup> to control resistant micrococci; *Nystatin* to suppress fungal overgrowth; and *Penicillin G. Potassium* for added impact.

So he ordered PANPLEX CAPSULES which he used with great success in numerous cases (see below) and he lived happily ever after.

---

PANPLEX CAPSULES are recommended in the treatment of the following conditions:

*Dogs: respiratory*—bronchitis, pharyngitis, pneumonia, tonsillitis, tracheobronchitis, and other upper respiratory infections; *urinary*—cystitis and nephritis; *dermal*—dermatoses and wounds; *miscellaneous*—osteomyelitis, bacterial complications of viral infections, and pre- and postoperative prophylaxis; *gastrointestinal*—bacterial diarrhea, enteritis, and gastroenteritis.

*Cats: pneumonia, enteritis, abscesses, infected wounds, bacterial complications of viral diseases, and for pre- and postoperative prophylaxis.*

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<sup>\*</sup>TRADEMARK

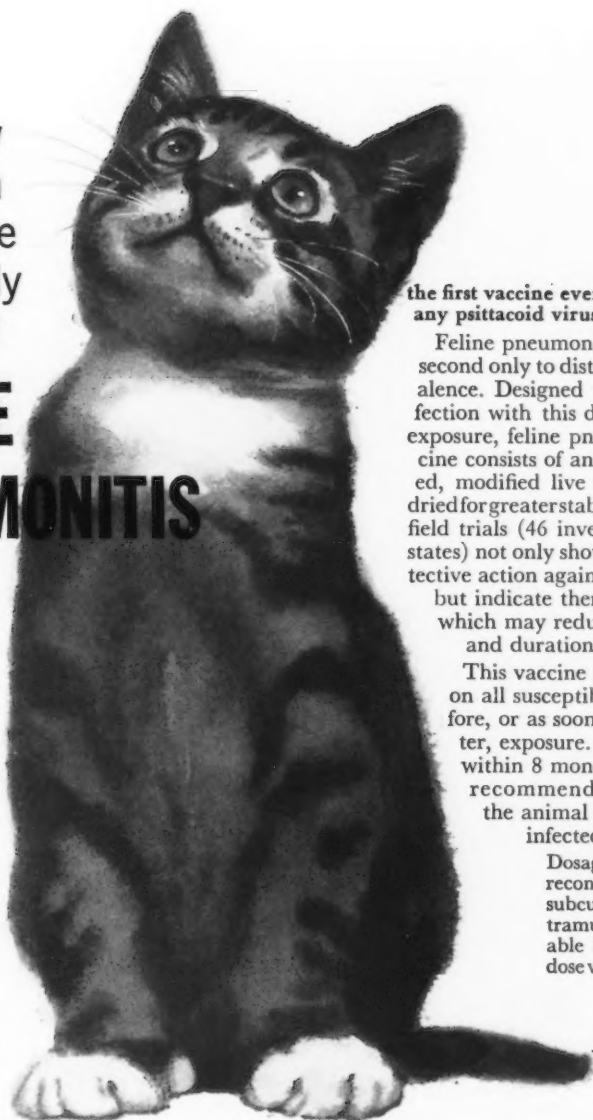
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Feline pneumonitis is a disease second only to distemper in prevalence. Designed to prevent infection with this disease prior to exposure, feline pneumonitis vaccine consists of an egg-propagated, modified live virus, vacuum dried for greater stability. Extensive field trials (46 investigators in 13 states) not only show a highly protective action against pneumonitis but indicate therapeutic effects which may reduce the severity and duration of the disease.

This vaccine should be used on all susceptible animals before, or as soon as possible after, exposure. Revaccination within 8 months to a year is recommended whenever the animal is placed in an infected environment.

Dosage is 1 cc. of the reconstituted vaccine, subcutaneously or intramuscularly. Available in 1 or 5 single dose vials with diluent.

(Bio. 804)

extensive field trials show 86% of cats protected by vaccine				therapeutic effects also indicated			
No. of cats	Status	No. of cats remaining well	No. of cats developing symptoms	No. of cats	Status	No. of cats recovering in 5 days	No. of cats remaining sick after 5 days
1462	vaccinated	1254 (86%)	208 (14%)	611	treated	449 (74%)	162 (26%)
809	controls	483 (60%)	326 (40%)	379	controls	66 (17%)	313 (83%)
field use in noninfected cats				field use in infected cats			

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